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A Review of the Hardware, Iron and Metal Trades.

Published every Thursday Morning by David Williams, Nos. 96, 98, 100 & 102 Reade St., New York.

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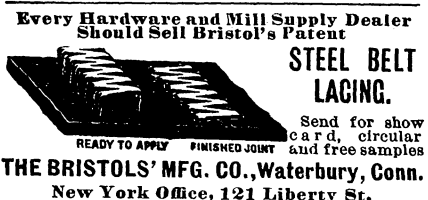
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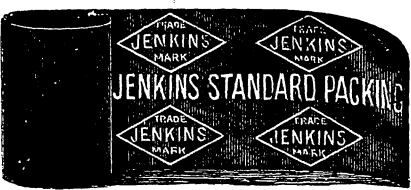
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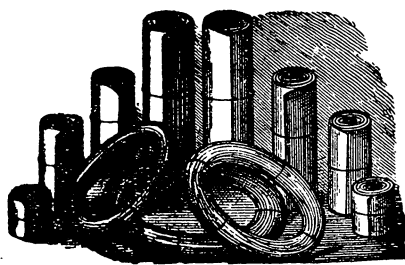
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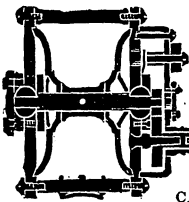
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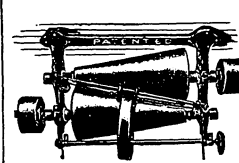
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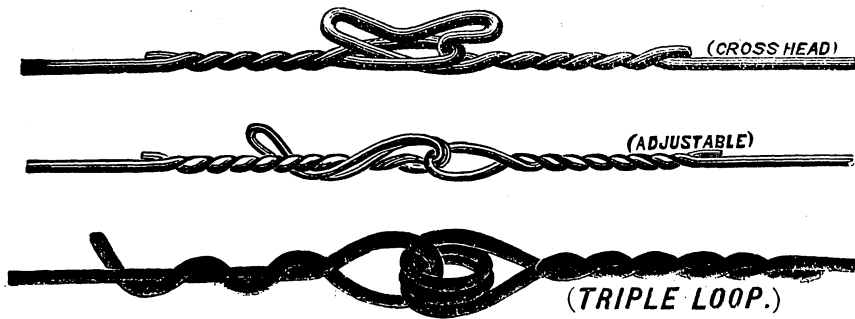
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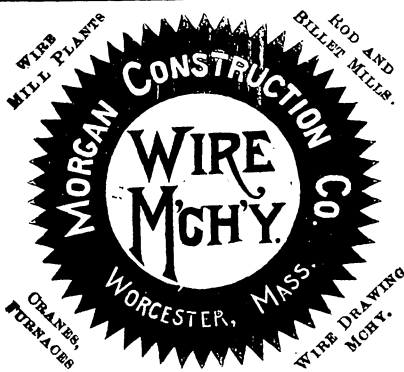


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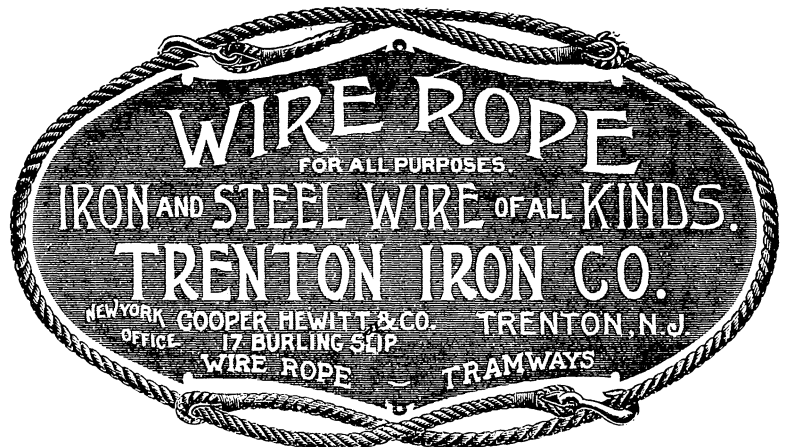
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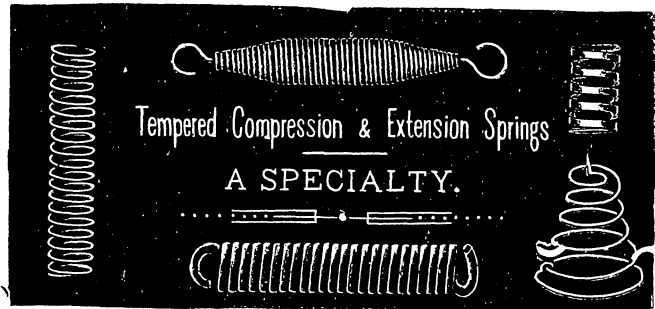


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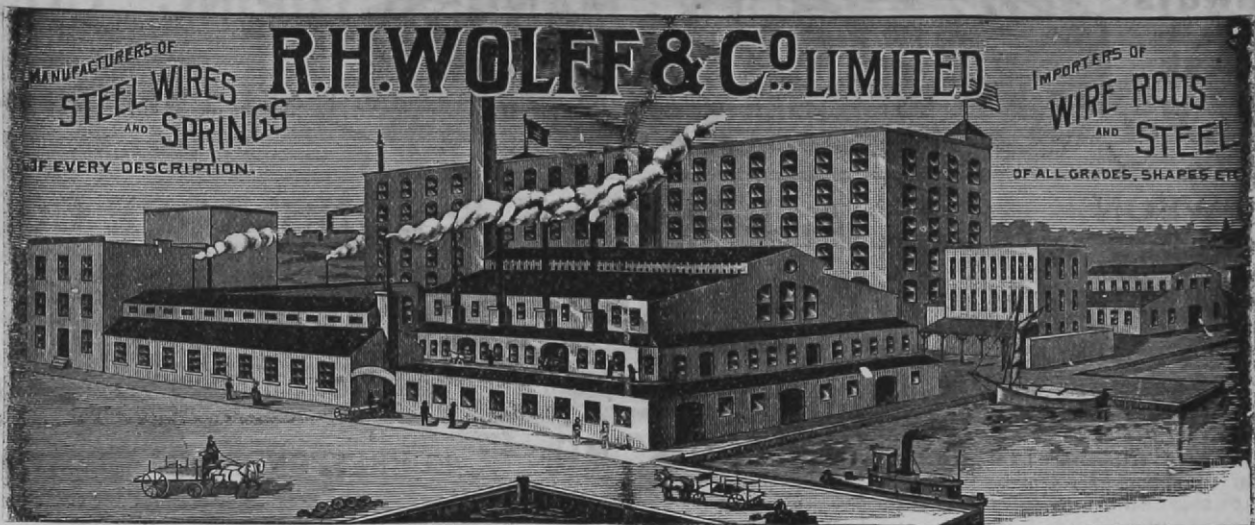
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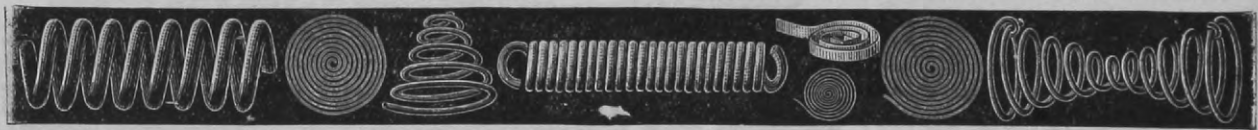
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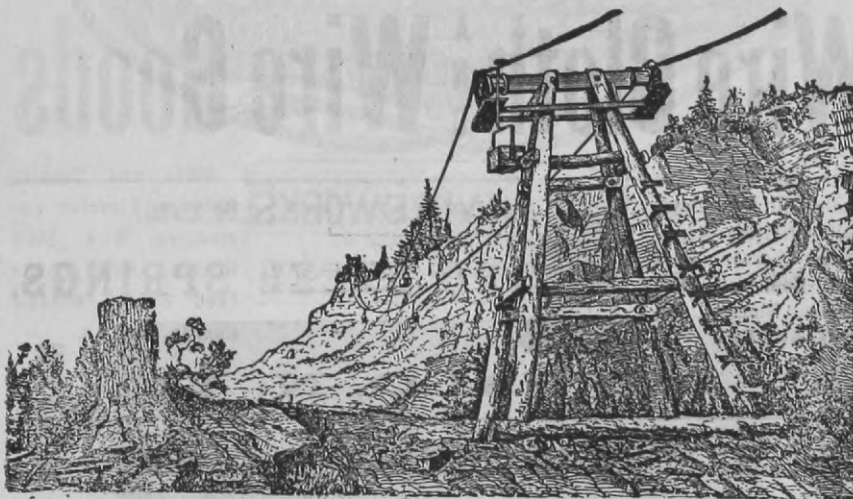
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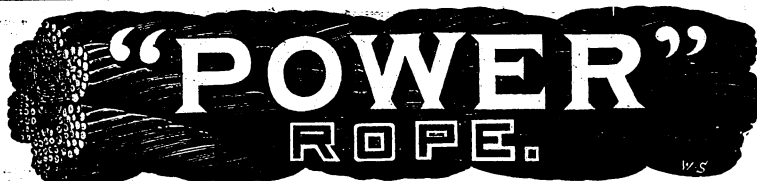


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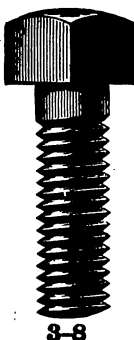
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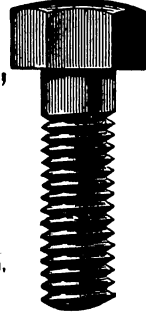
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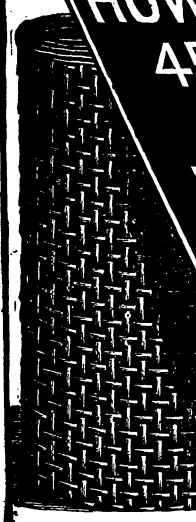
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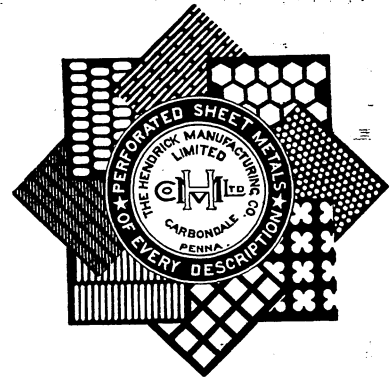
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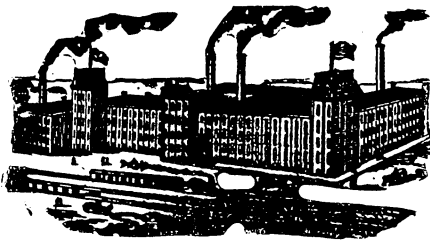

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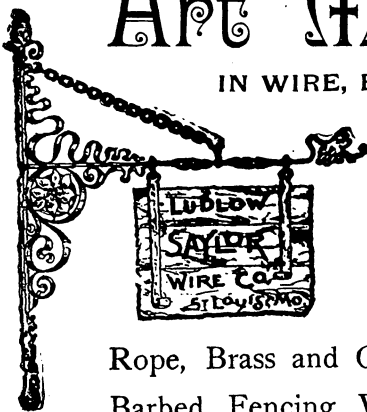
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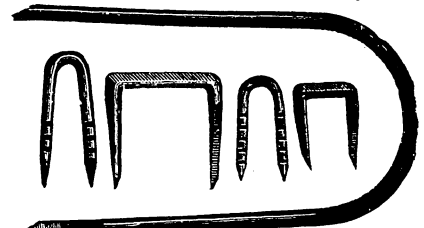
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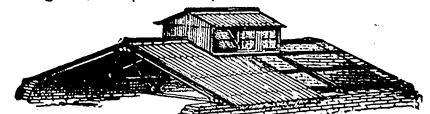
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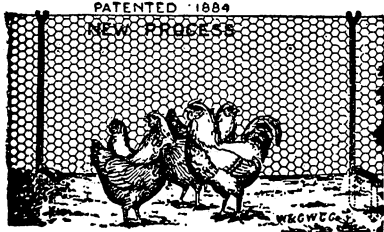
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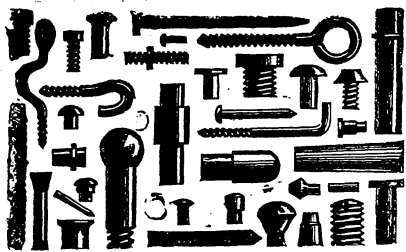
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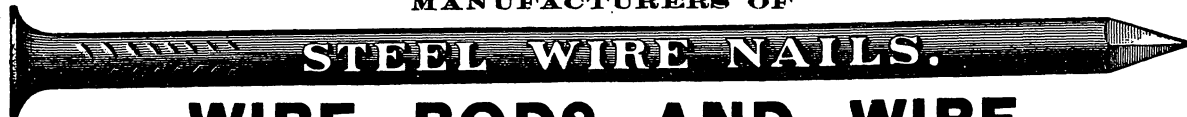
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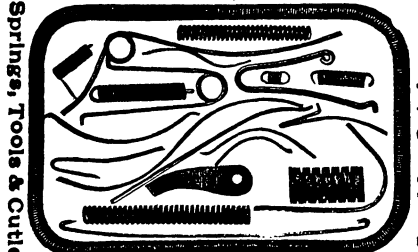
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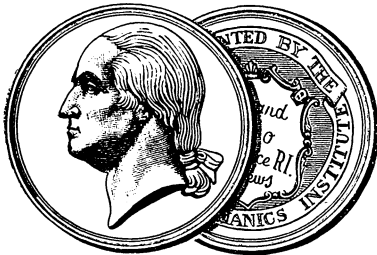
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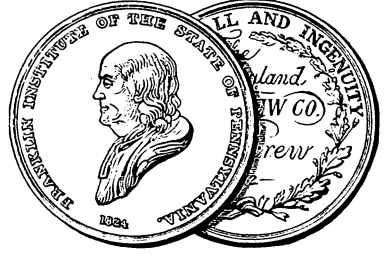
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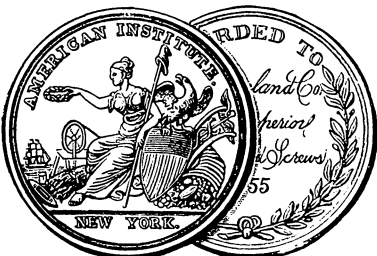
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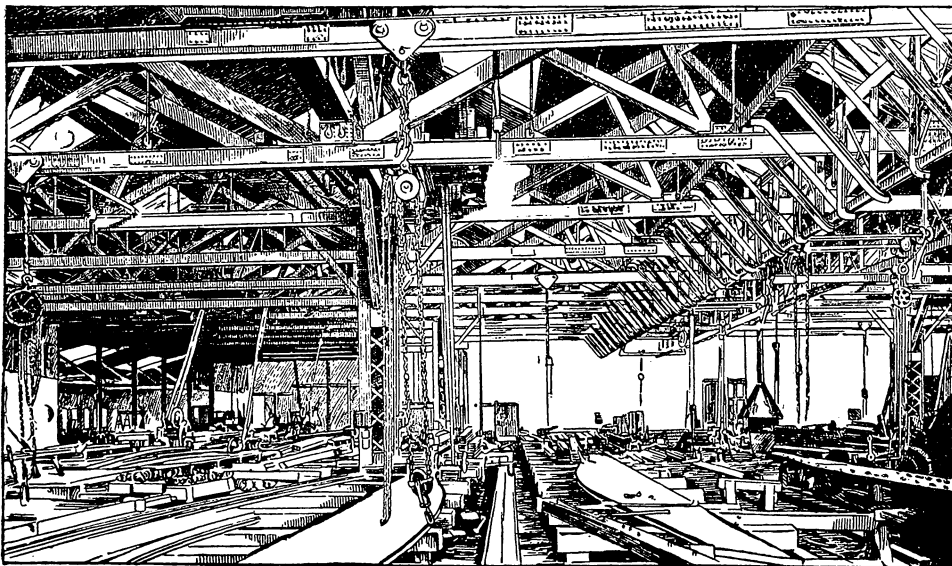
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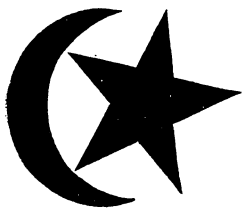
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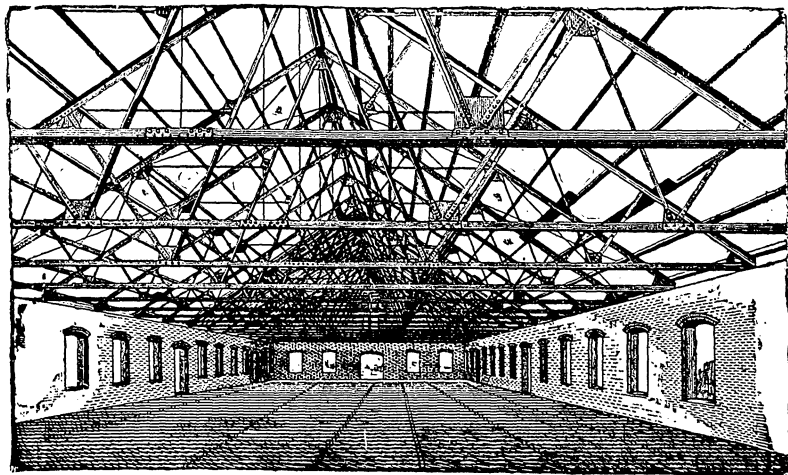
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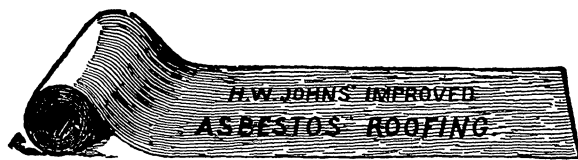
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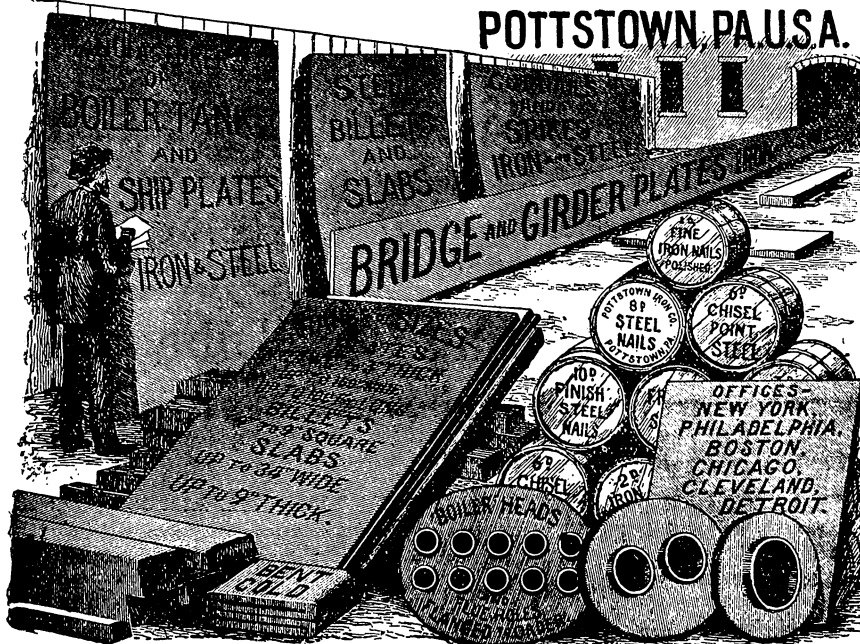
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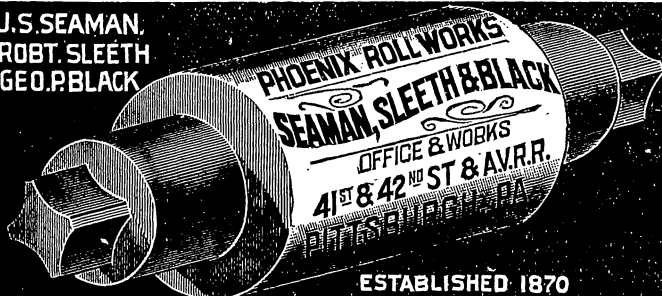
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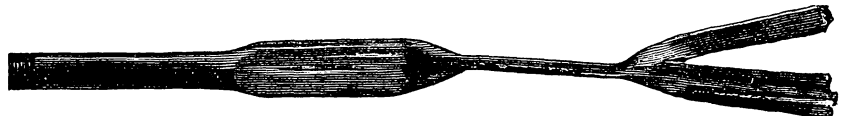
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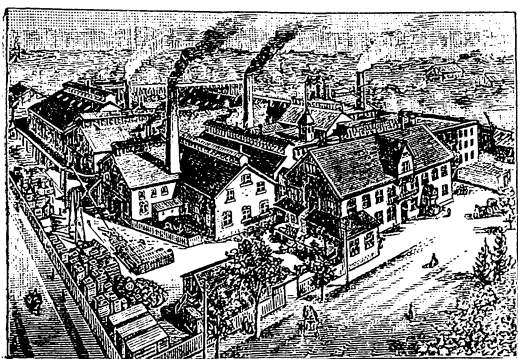
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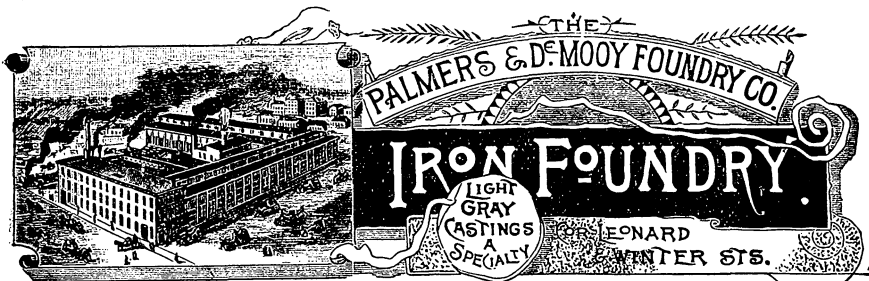
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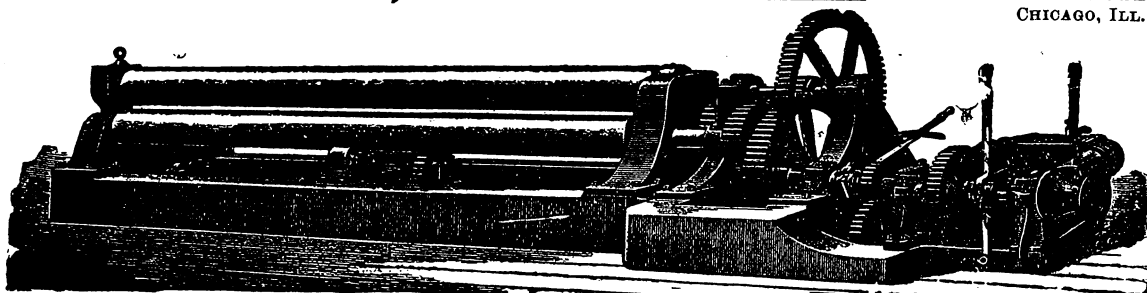
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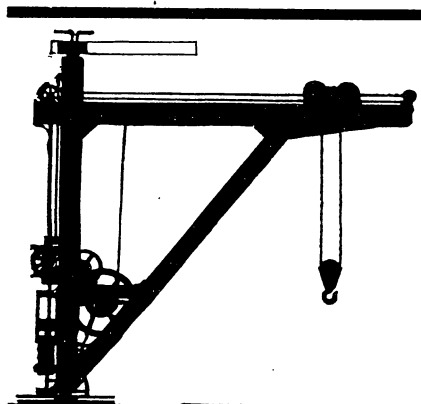
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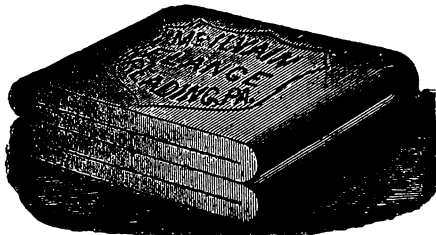
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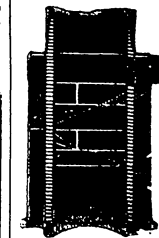
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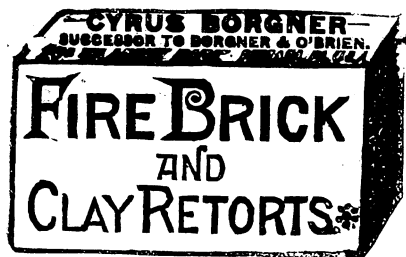
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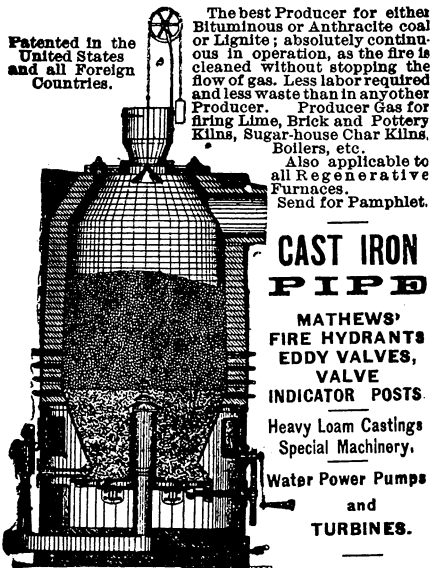
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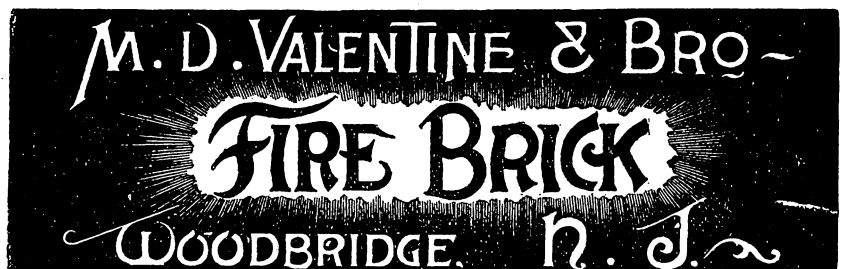
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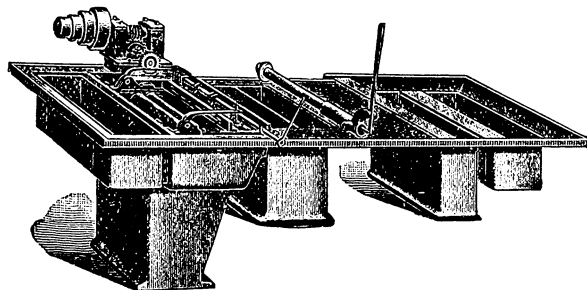
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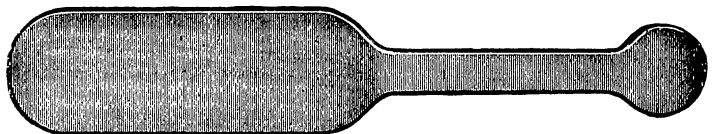
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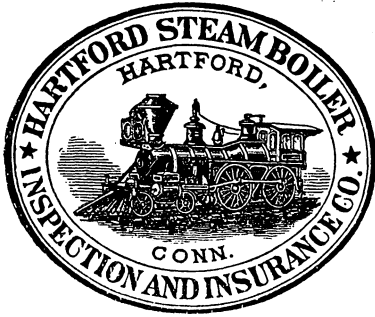
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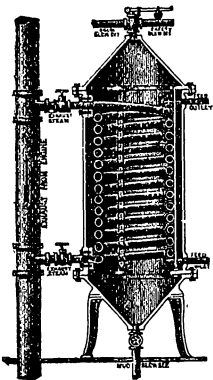
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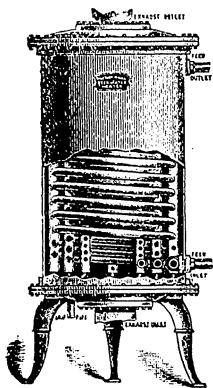
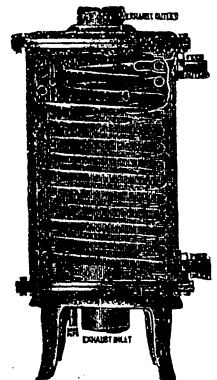
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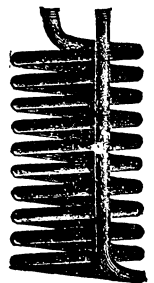
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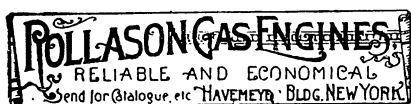
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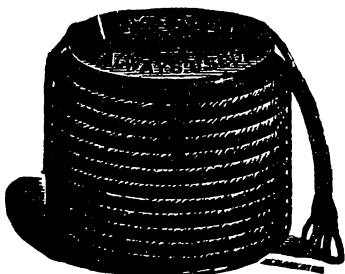
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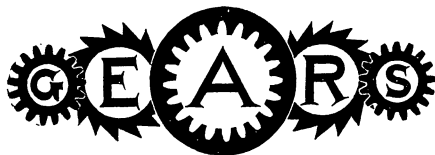
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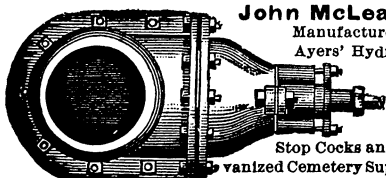
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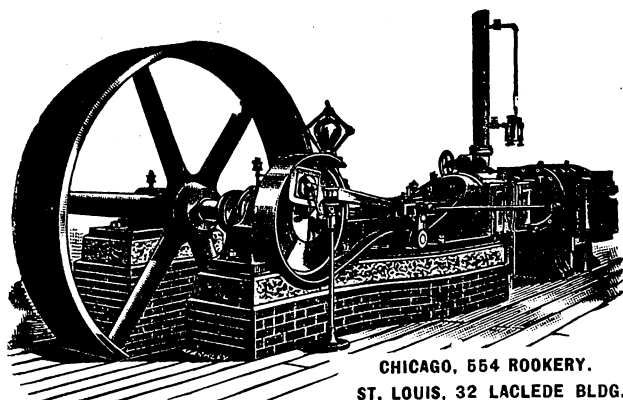


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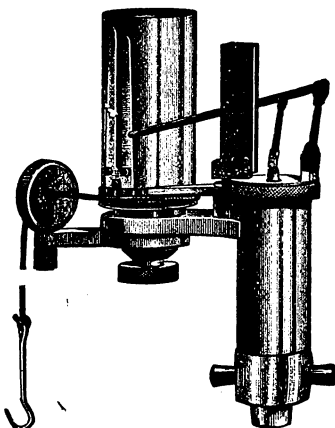
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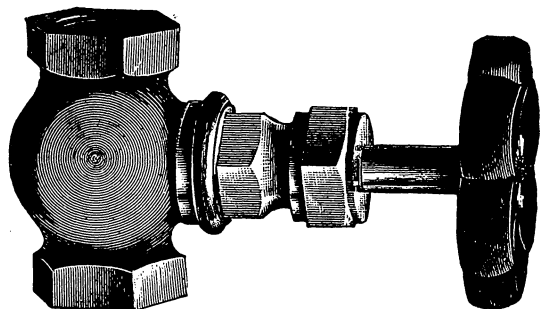


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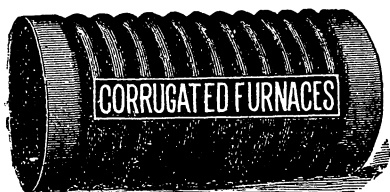


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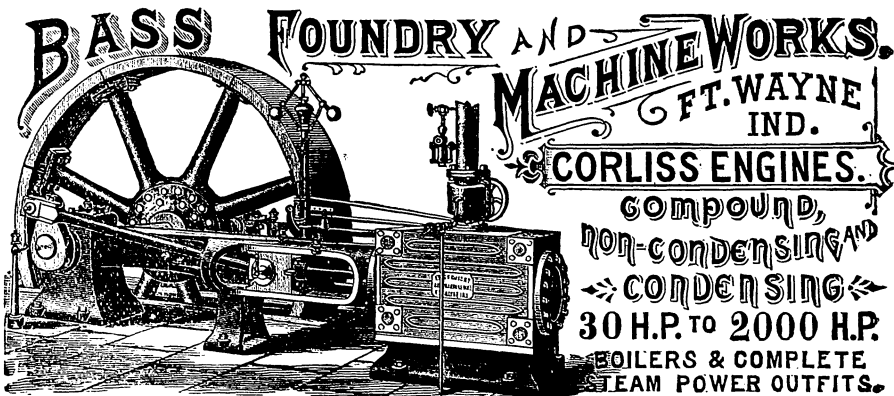
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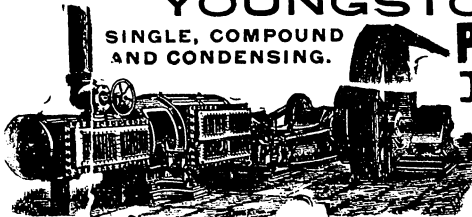
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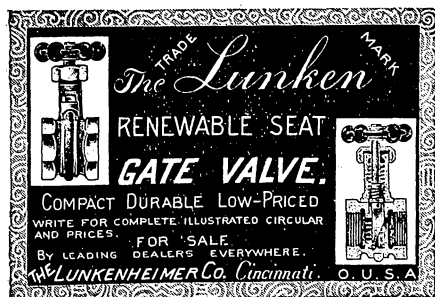


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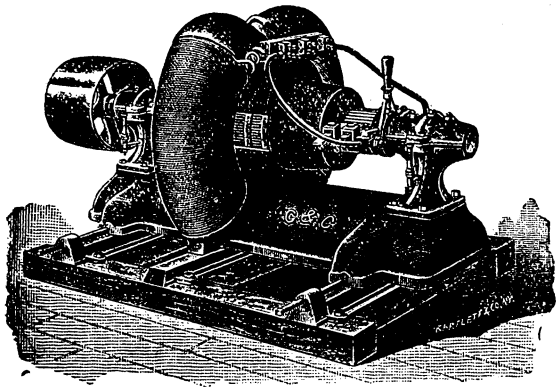
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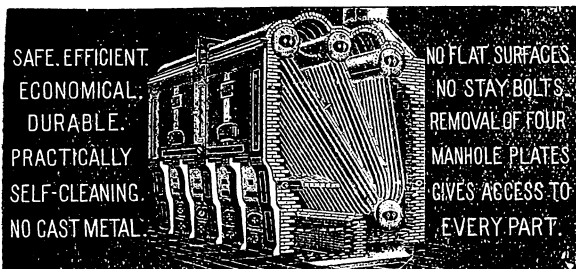
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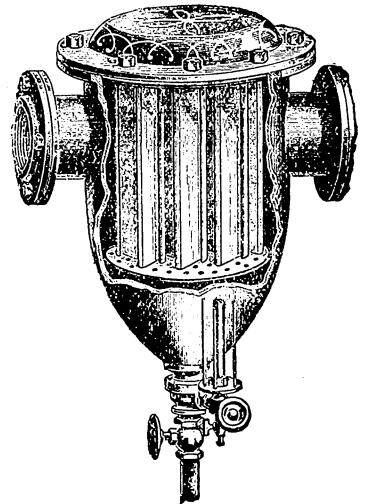
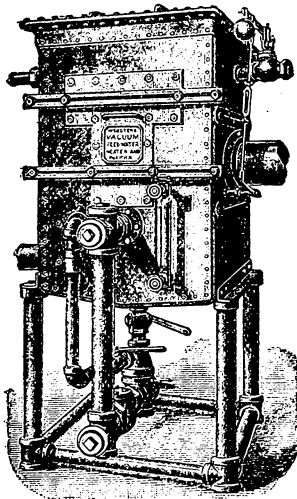
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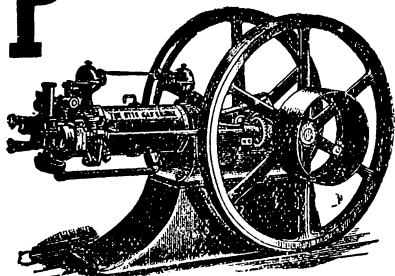
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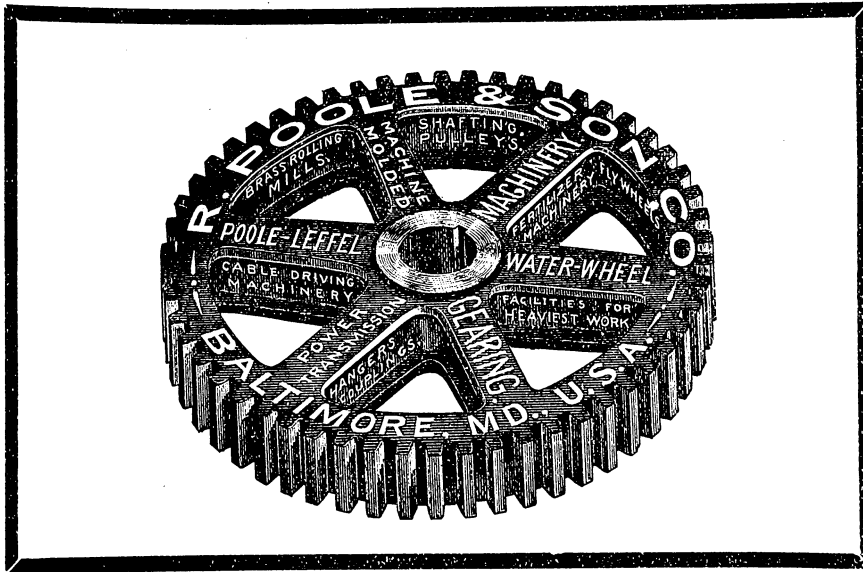
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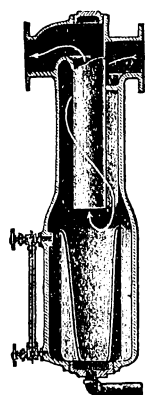
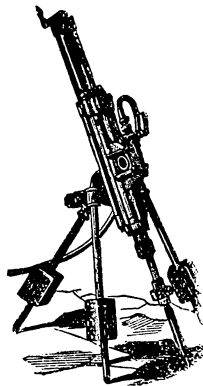
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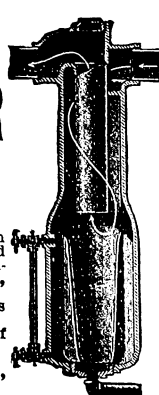


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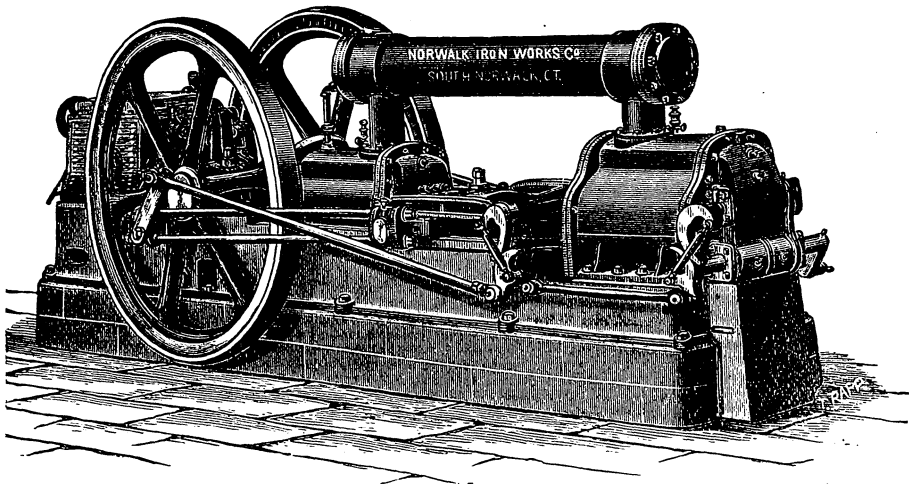
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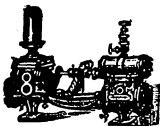
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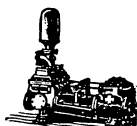
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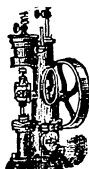
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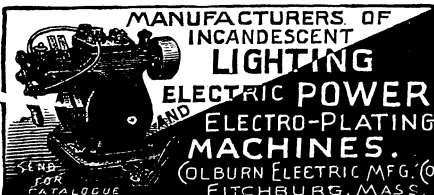
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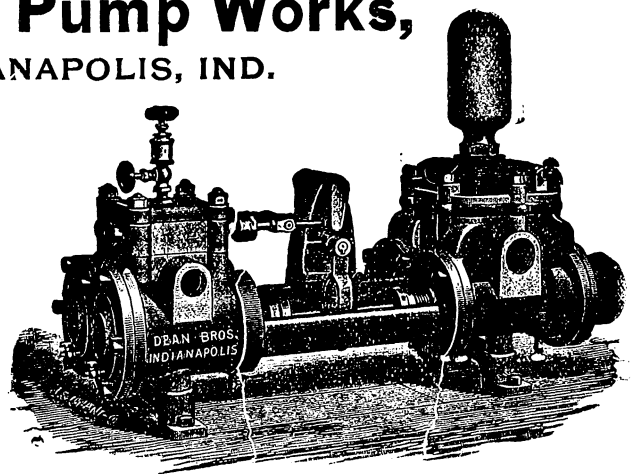
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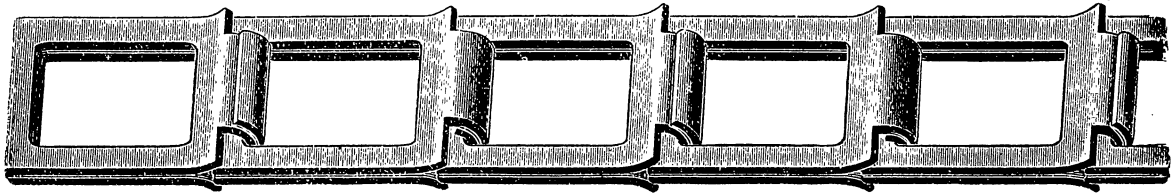
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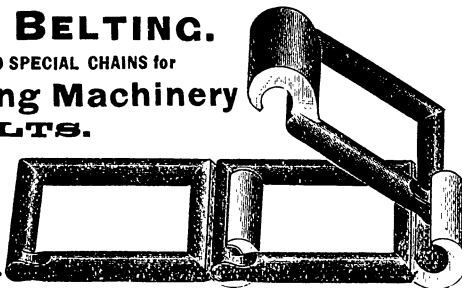
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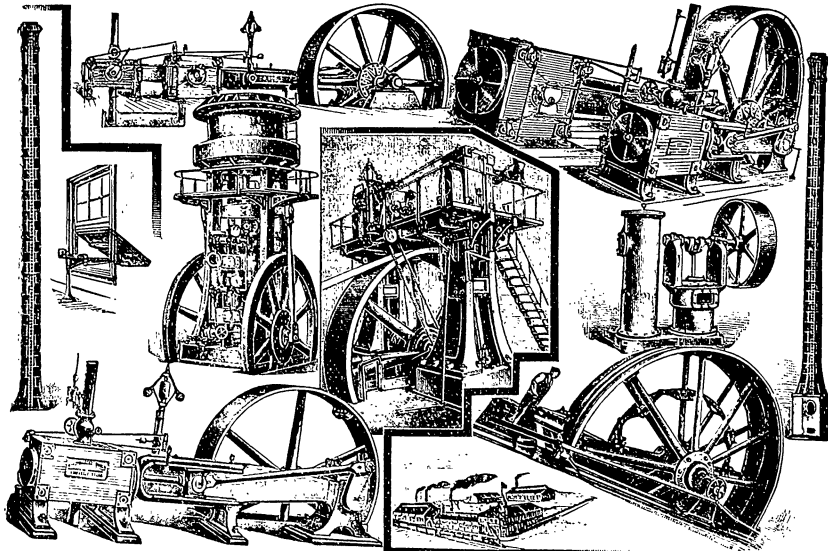
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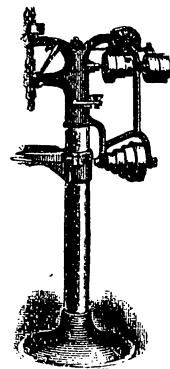
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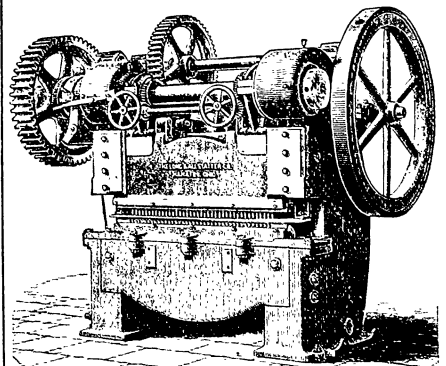
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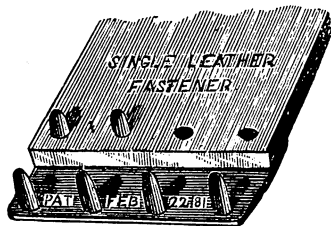
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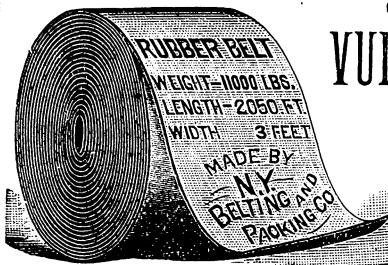
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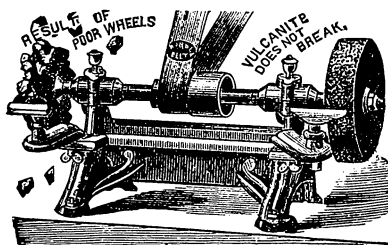
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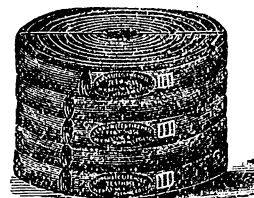
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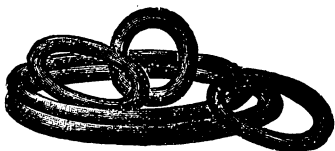
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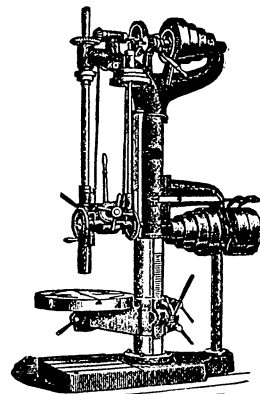
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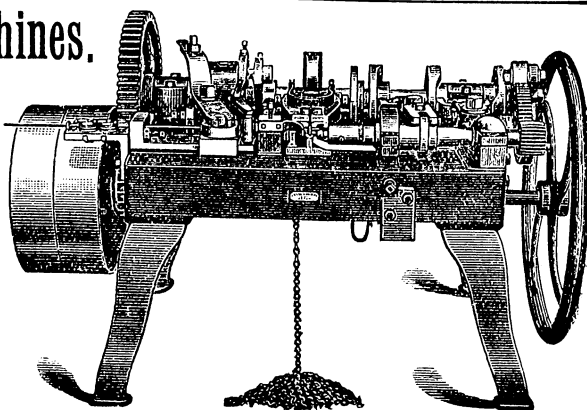
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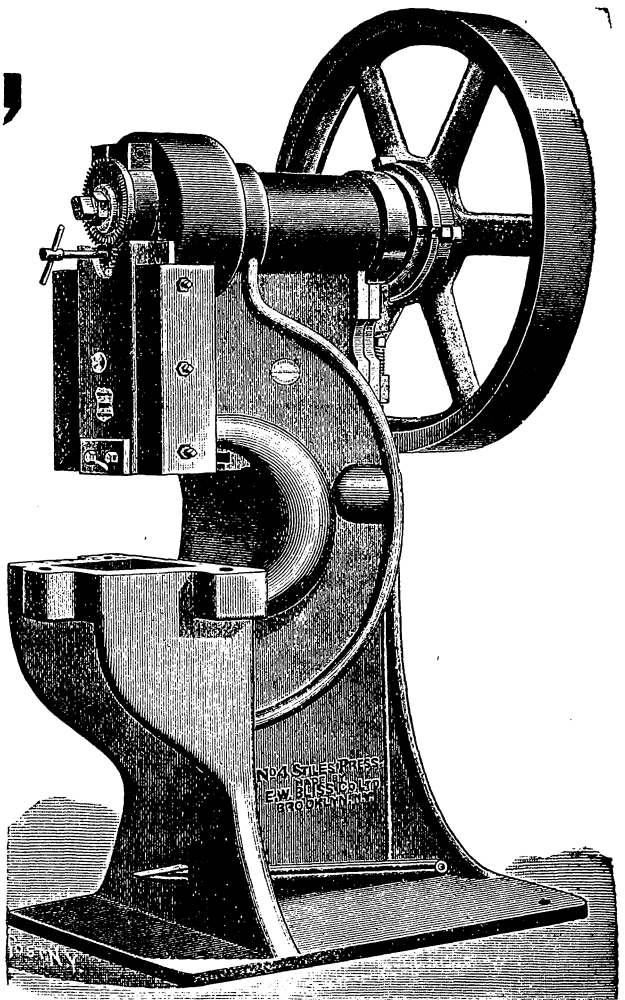
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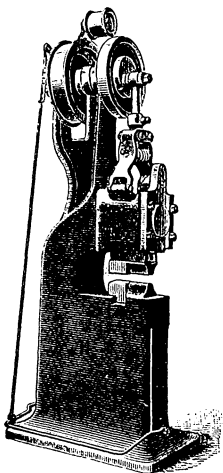
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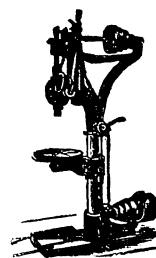
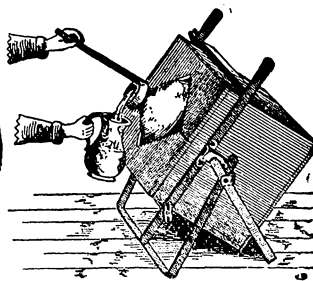
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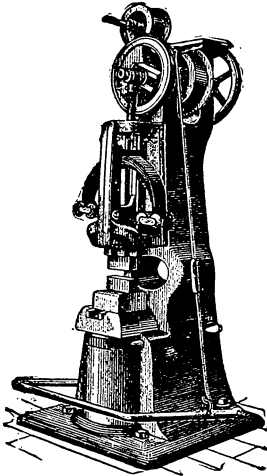
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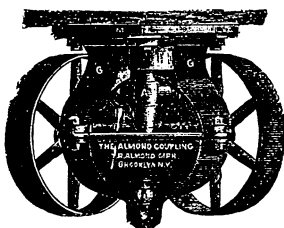
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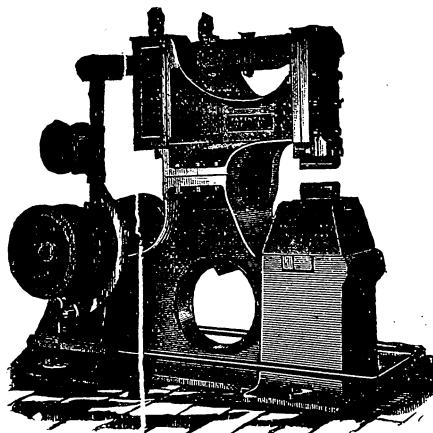
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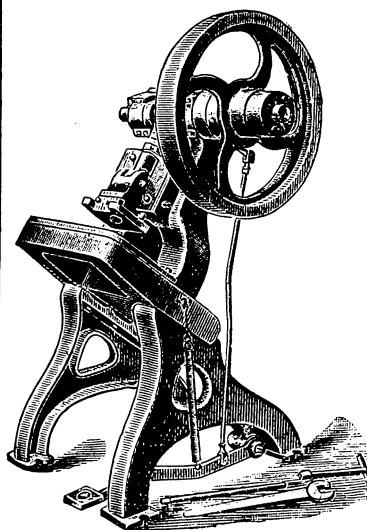
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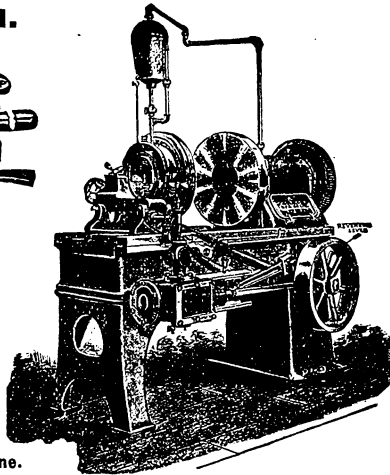
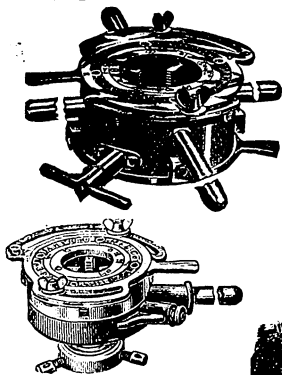
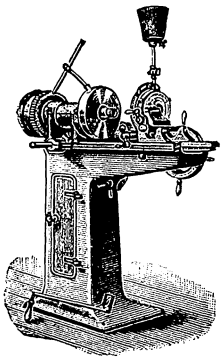
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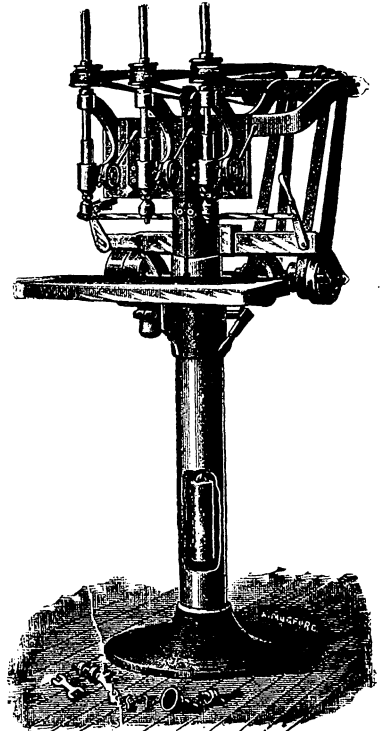


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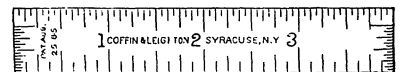
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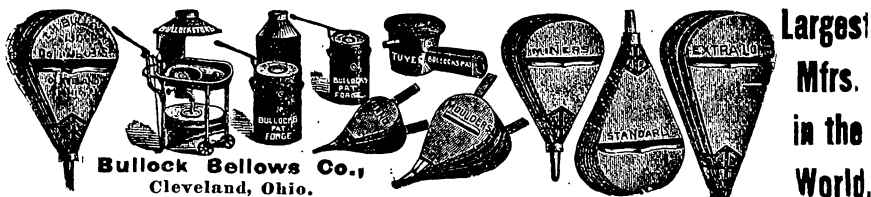
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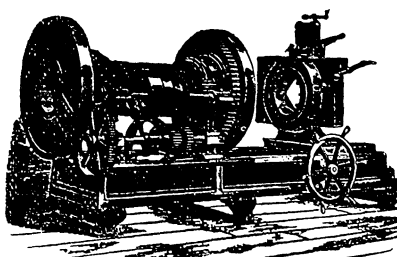
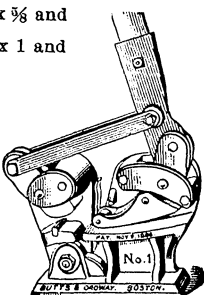
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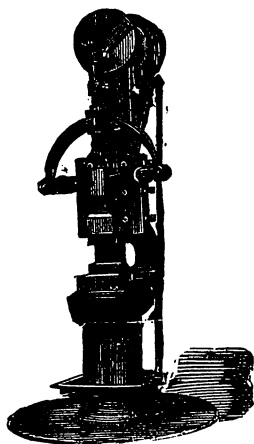
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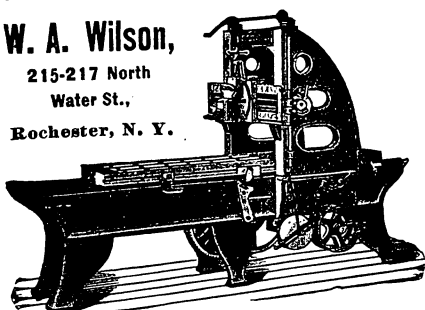
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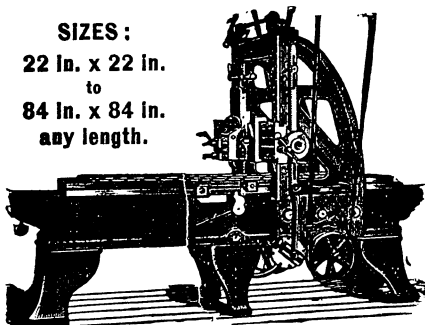
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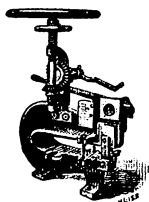
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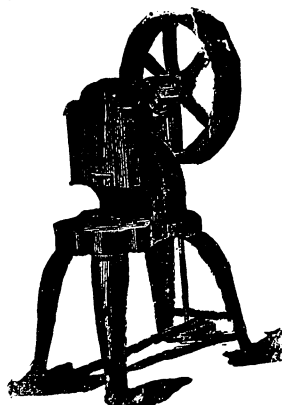


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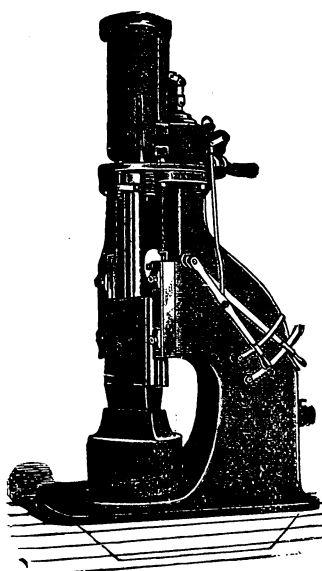
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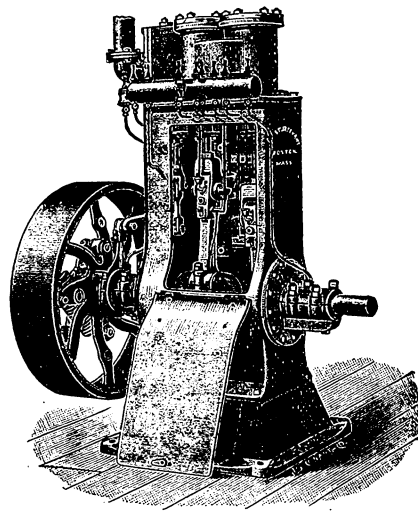
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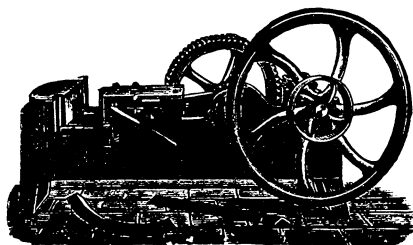
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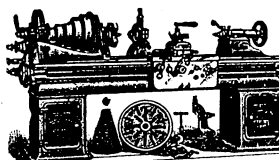
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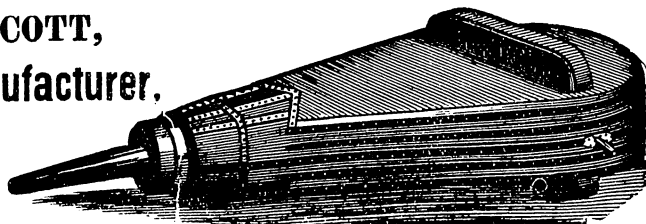
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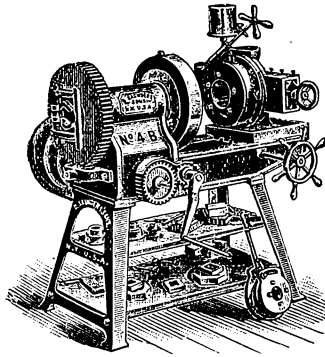
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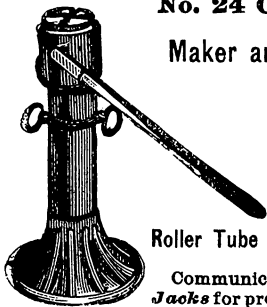
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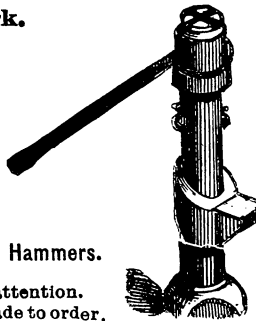
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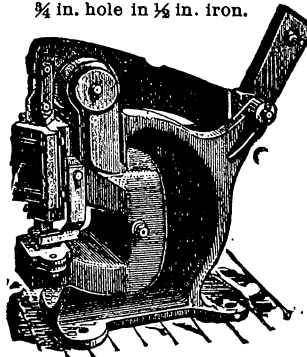
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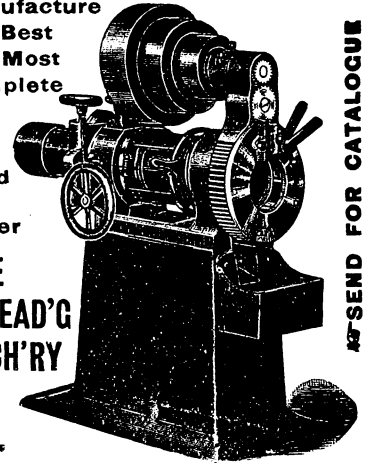
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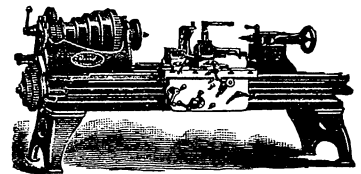
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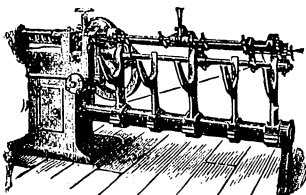
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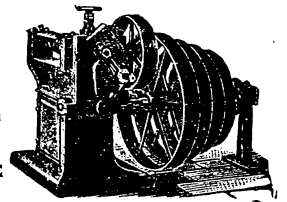
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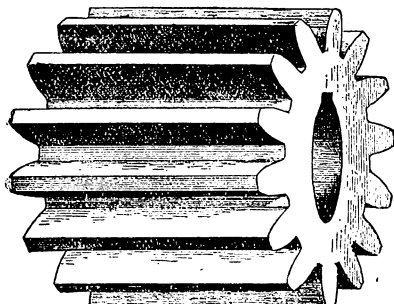
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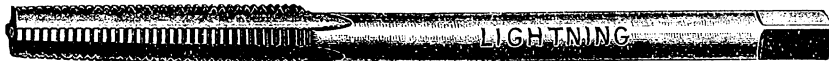
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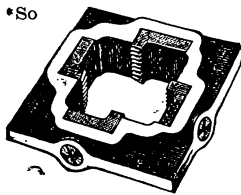
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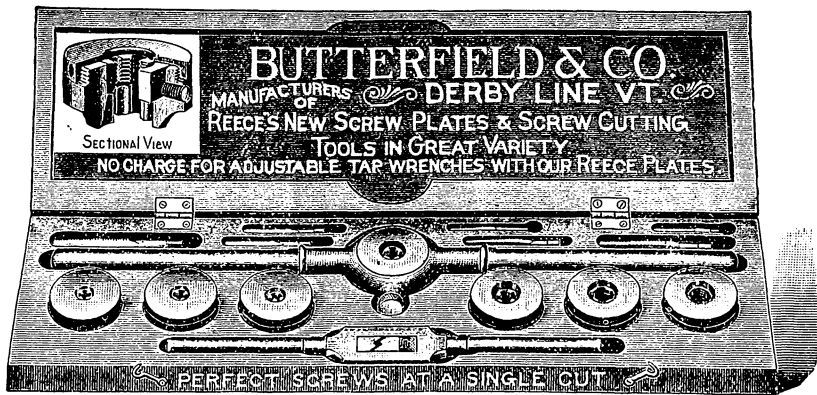
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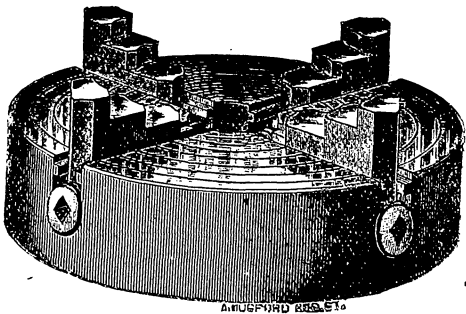
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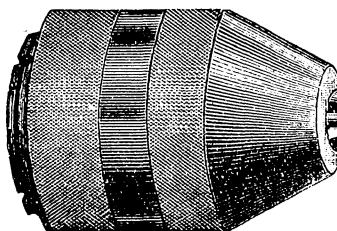
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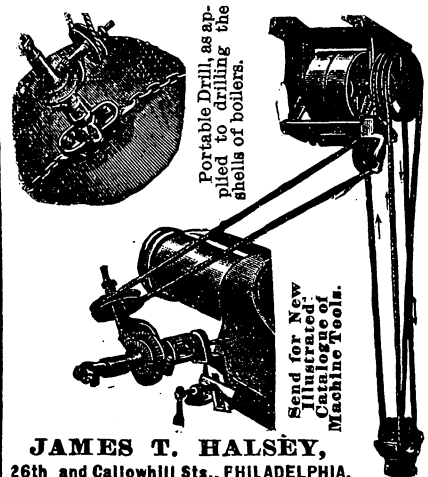
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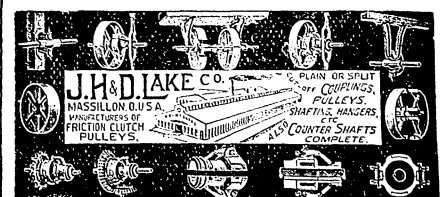
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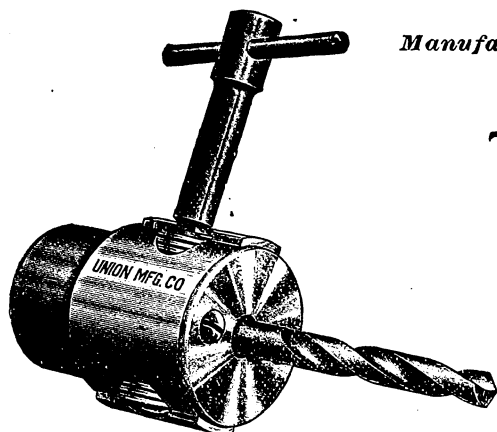
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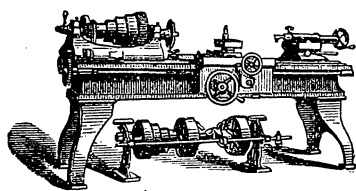


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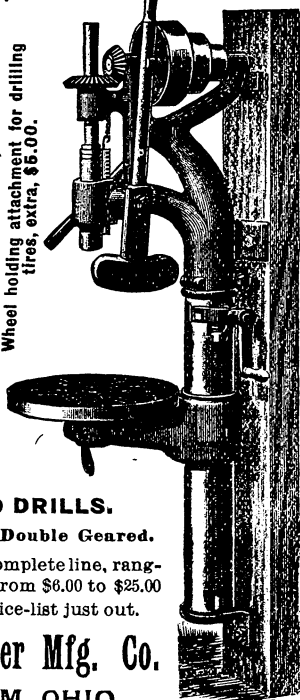
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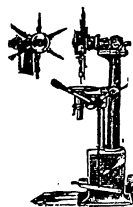


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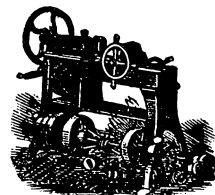
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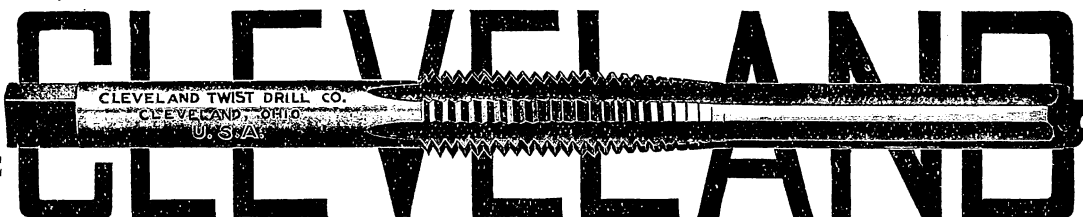
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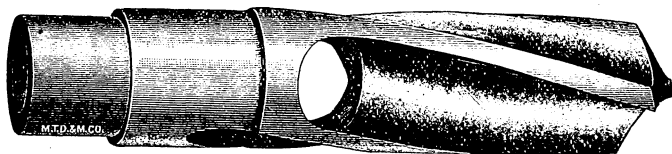
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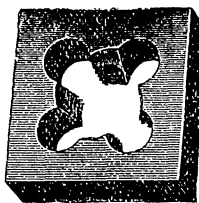
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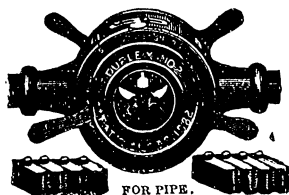


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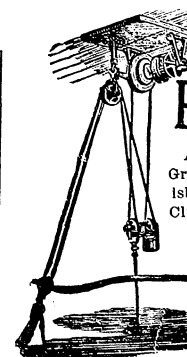
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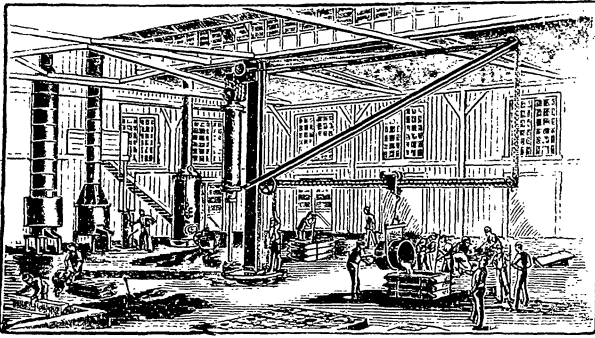
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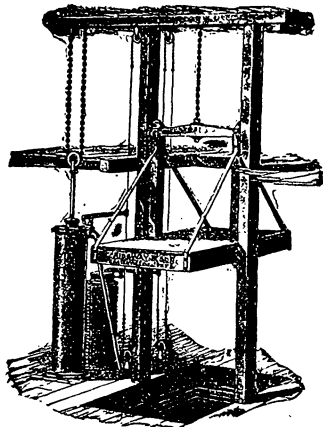
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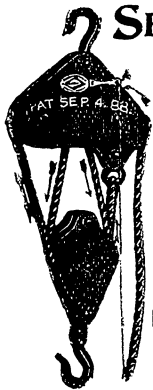
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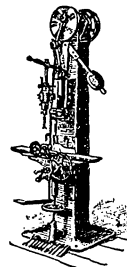
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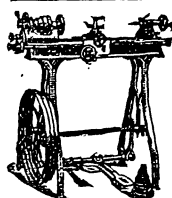
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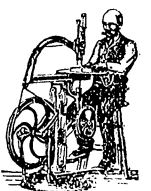
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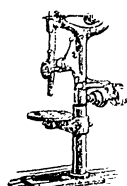
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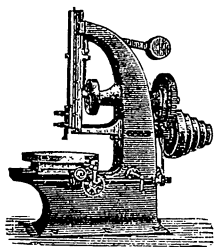
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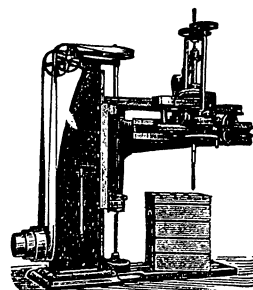
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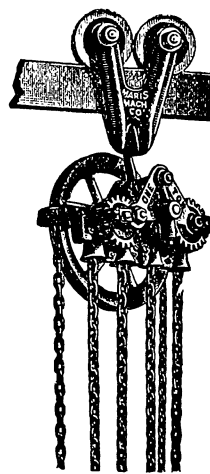
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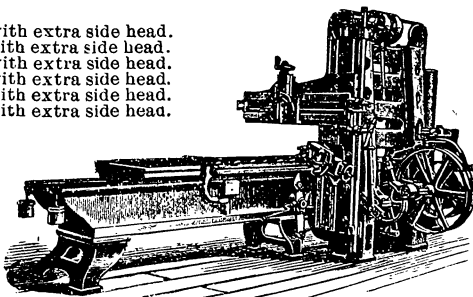
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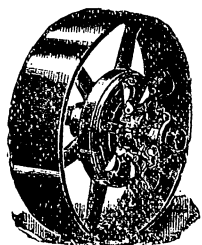
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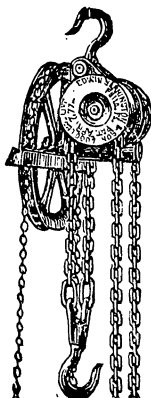
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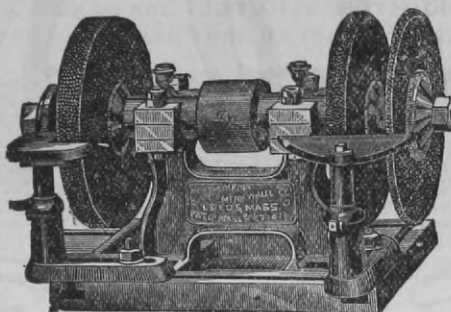
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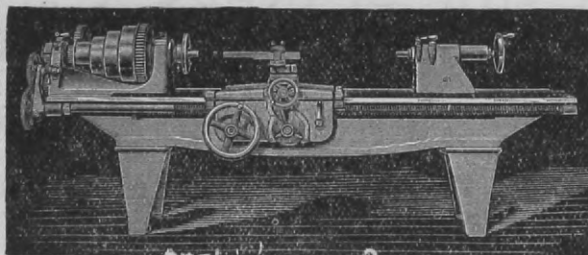
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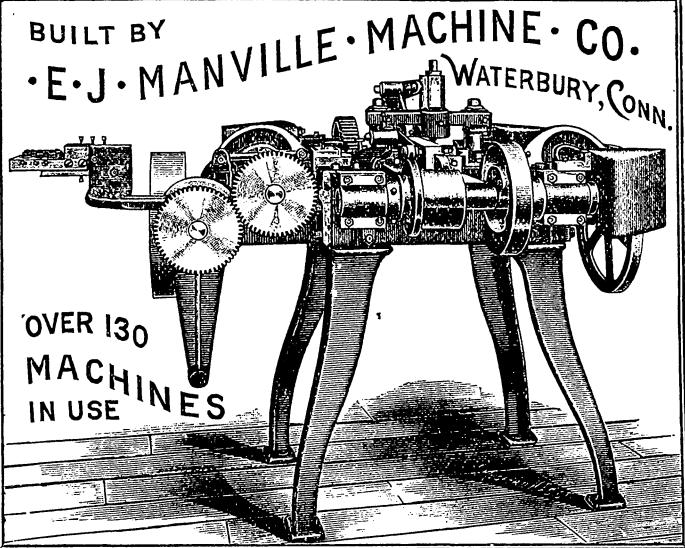
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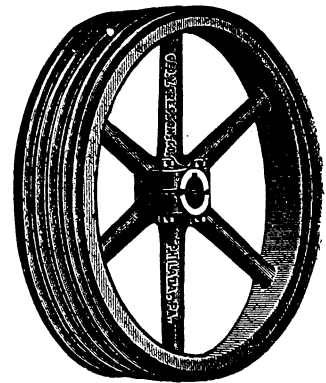
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AN EXPERIENCED SALESMAN with extensive acquaintance among the larger buyers of builders' hardware throughout the East, having office in N. Y. City as agent for a first-class manufacturer, is anxious to represent an additional company. Address "H. E. W.," No. 111, office of *The Iron Age*, 96-102 Reade St., New York.

SELLING AGENCY WANTED, for blast furnace and iron and steel works products, by a gentleman having extensive acquaintance among railroads, foundries and shops. Address "AGENT," No. 111, office of *The Iron Age*, 96-102 Reade St., New York.

POSITION with wholesale or retail house, as salesman, either to travel or in house; have had 14 years' experience in general hardware, and thoroughly acquainted with detail pertaining to builders' hardware; highest references as to character and capacity; can be engaged at favorable terms. Address "ALGER," office of *The Iron Age*, 96-102 Reade St., New York.

BY A THOROUGHLY experienced traveling salesman and hardwareman in fine builders' and general hardware, cutlery, guns, etc.; have also been buyer and manager of retail store; position with jobbers, manufacturers or in store. Address "EXPERIENCE," office of *The Iron Age*, 59 Dearborn St., Chicago.

AN EXPERIENCED SALESMAN and Agent with thorough knowledge of iron and machine trade, having office in Hookery, Chicago, would like to represent one more reliable concern. Address "HUSTLER," office of *The Iron Age*, 59 Dearborn St., Chicago.

TWO WIDE-AWAKE Eastern girls with five years' experience in hardware trade desire positions with manufacturer or wholesale house, either West or South; competent to take full charge of office; one as bookkeeper and cashier, other as entry and bill clerk; best reference from present employers. Address "CAPABLE," office of *The Iron Age*, 96-102 Reade St., New York.

SALESMAN, YOUNG MAN with experience in selling fine builders' hardware, with wide acquaintance East and West among jobbing and retail hardware houses, familiar with architects' plans and handling property owners, offers his services with a manufacturer or the building hardware department of jobber or retailer. Address "IRON MADE UP," office of *The Iron Age*, 220 So. 4th St., Philadelphia, Pa.

A MEMBER OF AMERICAN SOCIETY of Mechanical Engineers, who has had 20 years' practical experience as follows: machinist, head draughtsman, erector of steam plants, engineering, estimating, contracting and office work and superintendent of large engine works, is available for responsible position. Address "ENGINE WORKS," No. 16, office of *The Iron Age*, 96-102 Reade St., New York.

BY AN EXPERIENCED HARDWAREMAN, ten years' experience, three years' on the road; good salesman and stock keeper; West or Southwest preferred; best of references. Address L. W. VIVION, Benton City, Mo.

A GENTLEMAN about to reside permanently on the Pacific Coast desires to make arrangements with a manufacturing concern with a view of representing them exclusively in that section; thorough business qualifications with highest reference; business must be such that energy and push will produce an income of from \$2500 to \$3000 per year. Address "MORDANT," office of *The Iron Age*, 96-102 Reade St., New York.

EXPERIENCED MAN 23 years old, thorough knowledge of retail hardware, tinware and stove business, would like position with some wholesale or manufacturing establishment where hard work, reliability and push would gain a steady job; a good penman and quick at figures; best of references given; unmarried. Address "E. P. ELZEY," Princess Anne, Md.

BY A YOUNG MAN experienced in manufacture of iron or steel, as superintendent of mill; practical, thoroughly conversant in all branches, and the economical handling of help; now in charge of large plant but wishes to make a change; good reference. Address "CONVERSANT," office of *The Iron Age*, 96-102 Reade St., New York.

A FALSE CORE MOLDER who was in charge of a brass foundry for a long time in Germany and over three years in New York City, is looking for a steady position. "G. R.," office of *The Iron Age*, 96-102 Reade St., New York.

A S FOREMAN, by a thorough practical foundryman; several years' experience as foreman; understands handling men; best of reference. "FOREMAN," Box 14, office of *The Iron Age*, 96-102 Reade St., New York.

A S WORKING SUPERINTENDENT to manage a factory, by a bright pushing person, skillful mechanical engineer, thorough mechanic in use and construction of every kind of machinery, tools and interchangeable parts, electrical apparatus, dynamos, etc.; successful experience in economically handling help to get results for employer. "WOODLOCK," P. O. Box 56, Jersey City, N. J.

MR. HENRY MOORE withdrew from Woolley, Baynon & Moore Co., Jan. 1, 1894, and now solicits correspondence from manufacturers of heavy or shelf hardware with a view to representing them in New York City; has a good connection, having traveled 11 years in N. E. States and previously had an experience of many years in English steel and file business; he will travel occasionally when necessary. Address "HEAVY AND SHELF," Box 1228, office of *The Iron Age*, 96-102 Reade St., New York.

A WELL KNOWN and successful designer, builder and operator of ore concentrating mills and machinery is open for an engagement; practical, theoretical and thoroughly posted in all of the latest improvements in the art; best references. Address "Box 571," Glens Falls, Warren County, N. Y.

A S SUPERINTENDENT or mechanical engineer; have a thorough technical education; 12 years' practical experience as follows: Machinist, draftsman, engineer and superintendent of construction, estimating, contracting and office work; would invest in good company; can furnish best of reference. Address "Homo," No. 15, office of *The Iron Age*, 96-102 Reade St., New York.

BOOKKEEPER; by a man who has had years of experience as bookkeeper, head of office, etc., in iron manufacturing business; is well versed in the details of foundry, machine and boiler shop work. Address "DETAILS," No. 16, office of *The Iron Age*, 96-102 Reade St., New York.

BY A MECHANICAL ENGINEER and draftsman, a young man, 27, who is a practical mechanic and an experienced machine designer; familiar with steam engines, pumps and general machinery and who has had charge of men on construction work. Address "MACHINE DESIGNER," office of *The Iron Age*, 96-102 Reade St., New York.

BY CHEMIST experienced in iron and steel analysis and accustomed to general work outside laboratory, conducting tests, etc.; highest references. Address "EXPERT," Box 1228, office of *The Iron Age*, 96-102 Reade St., New York.

BY A TRAVELER thoroughly acquainted, anything in the hardware or metal line to sell in the principal cities through the West on salary or commission. Address "N.," No. 1228, office of *The Iron Age*, 96-102 Reade St., New York City.

BY A FIRST-CLASS BUSINESS MAN, with 15 years' practical experience as a rolling mill manager; thoroughly competent, and of the highest character; will be open for an engagement about February 1; is now engaged with large concern, but for satisfactory reasons desires to change. Address "GENERAL MANAGER," office of *The Iron Age*, 509-510 Hamilton Building, Pittsburgh, Pa.

PIG IRON SALESMAN desires a position after 15th inst.; references. "PIG IRON," No. 16, office of *The Iron Age*, 96-102 Reade St., New York.

MANUFACTURERS of leading goods who desire first-class representation to the wholesale and jobbing trade of the West and Northwest are respectfully invited to correspond with "SELLING AGENT," office of *The Iron Age*, 96-102 Reade St., New York.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

TRAVELING SALESMEN who visit the retail hardware trade can obtain on liberal salary a side line in which there is no competition; no samples to carry and sells wherever shown with little argument; all correspondence treated confidentially. Address at once, "SIDE ISSUE," P. O. Box 1153, New York City.

SALESMEN WANTED.—A specialty manufacturing company wish to market their goods direct to the retail trade throughout the States; reliable salesmen with a good record, who cover their territory every three months, will find this a good opportunity for obtaining a valuable account on a commission basis. For full particulars, address "FACTORY," 804 Hewes St., Brooklyn, N. Y.

TRAVELING SALESMAN.—Manufacturers of a first-class line of hot air furnaces desire to engage an experienced man, well acquainted with and commanding an established trade, to represent them for the coming year; must be thoroughly capable in every respect; we are able to offer to the right party a steady position, good salary, and an excellent future. Address, with references and experience, "FOUNDRY CO.," P. O. Box 434, Dayton, O.

SALESMEN visiting hardware trade to carry patented article in constant use as a side line; liberal commission; big seller. Address "GALLT," 85 Franklin St., New York.

AGENCY WANTED.—Advertisers having an established trade with railroads, locomotive builders, machine shops, etc., desire to add a first-class agency; have ample warehouse room. Address "A. W.," Box 111, office of *The Iron Age*, 96-102 Reade St., New York.

SALESMEN in Arkansas, Miss., Ala., Georgia, So. Carolina and Florida to sell staple line of hardware on commission. Address "EDWARDS," care E. S. ADAMS, office of *The Iron Age*, 312 The Cuyahoga, Cleveland, O.

A GOOD CORRESPONDENT for a manufacturer; one having experience as salesman preferred; only first-class ability recognized. Address "ABILITY," office of *The Iron Age*, 509-510 Hamilton Building, Pittsburgh, Pa.

SALESMAN with experience and trade in hardware and cutlery in New York and Penna. Address, with references and full particulars, "TRADE," No. 1221, office of *The Iron Age*, 96-102 Reade St., New York.

SALESMEN visiting hardware trade to sell as a side line on commission our Unique Self Heating Hair Curler; it sells equally as well to the following dealers: Druggists, Jewelers, Bazaars, Dry Goods, News Stands, etc. Address, with references, UNIQUE NOVELTY CO., 99 to 103 Abbot St., Detroit, Mich.

SALESMEN to sell on commission to the hardware, plumbing and rubber trade the best and cheapest line of lawn sprinklers made; see advertisement in this paper. Address ETTE & HENGER MANUFACTURING CO., St. Louis, Mo.

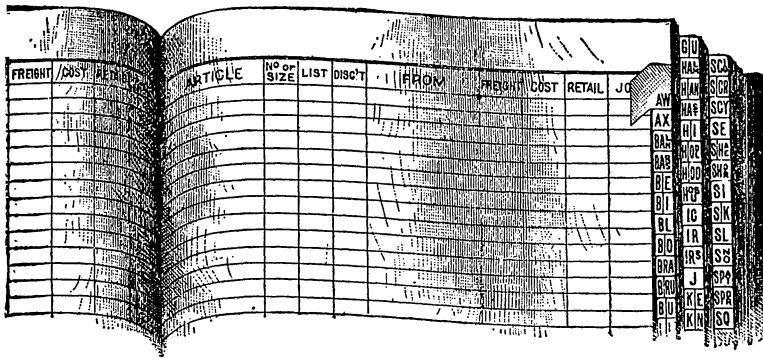
THE BOND NAIL.

These nails are made from different sizes of wire with head at any desired position between the points. For coopers, box and furniture manufacturers' dowels, they are unsurpassed. Builders and repairers of all kinds will find these nails useful. We also manufacture Doweling Machines and Sets for driving these nails. Address

THE BOND NAIL CO.,
P. O. Box 23, RAYNHAM, MASS.

The Iron Age Hardware Price Book E.

SECOND EDITION, REVISED AND ENLARGED, WITH MULTIPLE INDEX (Patent Pending).



AD GU SC₁
AN HA_M SCR
AU HAN SCY
AW HA_S SE
AX HI SH_E
BA_N HO_L SH_O
BA_S HOO SI
BE HO_S SK

Fac-Simile of Indexing.

SIZE.—The book is 7 x 10 inches (much larger than Price Books A, B, C, or D), 350 pages.

PAPER.—The paper is the celebrated Crane's heavy ledger paper, tough and strong, permitting frequent changes and erasures.

BINDING.—The binding is of the very best quality—flexible seal grained leather.

INDEX.—By means of the arrangement shown in the cut the index applies to every page (except Supplement) and permits reference to any article at a single motion. This greatly facilitates the use of the book, avoiding the troublesome turning from page to page which is necessary in connection with other Price Books. It has been prepared with great care, and it is believed that it provides a place for every article in the Hardware line.

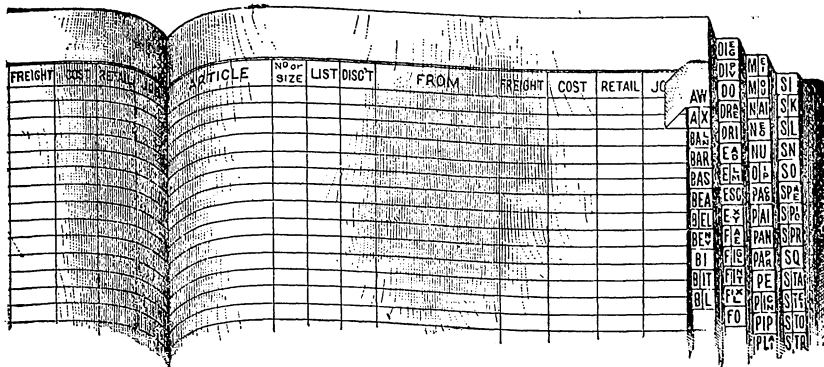
ARRANGEMENT.—The book is arranged to keep a complete record of prices on a single page, the width giving sufficient room.

SUPPLEMENT.—A 40-page Supplement is provided to give room for supplemental quotations, memoranda, tables, &c.

THIS BOOK IS ISSUED IN ONLY ONE EDITION, PRICE, \$5.00.

The Iron Age Hardware Price Book F.

WITH MULTIPLE INDEX (Patent Pending).



AD DI_E M_F SI
AN DI_V M_O SK
AU DO NA_I SL
AW DR_E N_O SN
AX DRI NU SO
BA_N E_A O_P SP_E
BAR E_M PA_O SP_O
BAS ESC PA_I SPR

Fac-Simile of Indexing.

SIZE.—The book is 8 1/4 x 11 inches (much larger than Price Books A, B, C, D or E), 556 pages.

PAPER.—The paper is the celebrated Crane's heavy ledger paper, tough and strong, permitting frequent changes and erasures.

BINDING.—The binding is of the very best quality—flexible seal grained leather.

INDEX.—By means of the arrangement shown in the cut the four rows of index applies to every page (except Supplement) and permits reference to any article at a single motion. This greatly facilitates the use of the book, avoiding the troublesome turning from page to page which is necessary in connection with other Price Books. It has been prepared with great care, and it is believed that it provides a place for every article in the Hardware line, and gives ample space for recording prices.

Sufficient space has been provided for large lines of goods such as Axes, Bits, Springs, etc., by allowing four pages to such indices, instead of two pages, as for lines of goods requiring less space. This is accomplished, as in AX for example, in Book F by having a short tab with the letter A on the tab on the first leaf, and AX on the tab on the second leaf. The A on the first leaf is directly over the A on the lower leaf, so that the index reads AX whether looking at both leaves together, or at the lower one only.

The four rows of index tabs are printed in gold letters on black Russia leather. The tabs are securely fastened on both sides of each page, making a handsome and durable index.

ARRANGEMENT.—The book is arranged to keep a complete record of prices on a single page, the width giving sufficient room.

SUPPLEMENT.—An 80-page Supplement is provided to give room for supplemental quotations, memoranda, tables, &c.

THIS BOOK IS ISSUED IN ONLY ONE EDITION, PRICE, \$7.50.

Advantages of Multiple Index Price Book.

A SPECIAL feature of the books is the arrangement of the index characters, which, instead of being alphabetical, are arranged with special reference to the classification of Hardware goods, each index character giving the first two or three letters of the names of Hardware articles, as shown above. The ease and convenience with which the books can be used is indicated in the following examples, taken from Book F:

For Augers, turn to AU	For Chisels, turn to CH	For Iron, turn to IRO
" Parers, Apple " PAR	" Cutlery, " CUT	" Irons, " IR'S
" Saws, " SAW	" Cartridges, " CAR	" Shovels, " SH_O
" Pumps, PUM	" Rules, " RUL	" Grindstones, " GRI
" Bits, " BIT	" Locks, " LO	" Stones, " STO

Special care has been taken to make the classification as indicated in the index correct and comprehensive, making provision for all Hardware articles and giving sufficient space for the keeping and recording of prices. It is thought that every strictly Hardware article has its first two or three letters given, thus permitting immediate reference to it by a single motion.

It is, however, obvious if any articles are not directly designated by the index characters, that the index, being alphabetical in its arrangement, indicates the place where quotations on such articles should be recorded. The supplement, however, may be found useful for quotations on any outside goods which the Hardwareman may desire to keep prices on, while at the same time it may be used if necessary for any overflow of matter from the preceding pages, or to contain list prices or other matter relating to goods.

Hardware Classification.—A pamphlet containing a classification of the leading Hardware articles is furnished with the price books.

Standard Lists.—In connection with these price books a set of *The Iron Age* STANDARD HARDWARE LISTS can be used with great advantage. Price 25 cents.

These price books, which have been prepared by R. R. Williams, Hardware Editor of *The Iron Age*, are presented to the attention of Hardware men in the confidence that they will be found a most valuable aid in keeping track of prices.

Sent, Post-paid, on Receipt of Price, by

DAVID WILLIAMS, Publisher, - 96-102 Reade St., New York.

THE STEEL AND IRON IMPROVEMENT CO.,

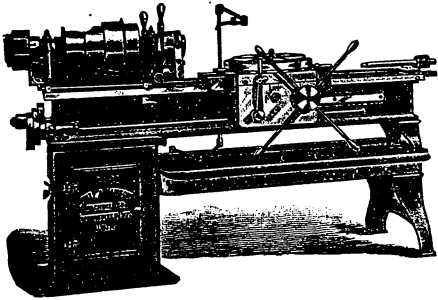
Controlling the Adams-Blair Process and other Steel and Iron Patents.

High Grade Open Hearth Steel produced by the Adams-Blair Process at less than the Cost of BESSEMER Steel.

91 and 98 Fifth Ave., Pittsburgh, Pa.

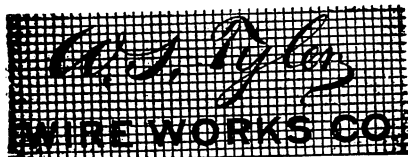
EASTERN OFFICE: 412 Drexel Building, Philadelphia, Pa.

HAVE YOU A
FLAT TURRET LATHE ?



If not send for

RAPID LATHE WORK
JONES & LAMSON MACHINE CO.,
SPRINGFIELD, VT., U.S.A.



MANUFACTURERS OF

"The Tyler"

Double Crimped Wire Cloth for Mining Purposes.

All meshes from two to the inch up to 100 mesh made and carried in stock.

W. S. TYLER, Pres. PROCTOR PATTERSON, Sec. & Treas
CLEVELAND, OHIO.

ANALYTICAL
AND ASSAY **LABORATORIES**

—OF—

DR. GIDEON E. MOORE

221 PEARL ST., (Corner Platt St.) NEW YORK.

Assays of Ores, Metals and Metallurgical Products of every description.
Analysis of Water, Ores, Minerals, Metals, Fuel, and Natural and Industrial Products generally.

PRINTED PRICE-LIST ON APPLICATION.

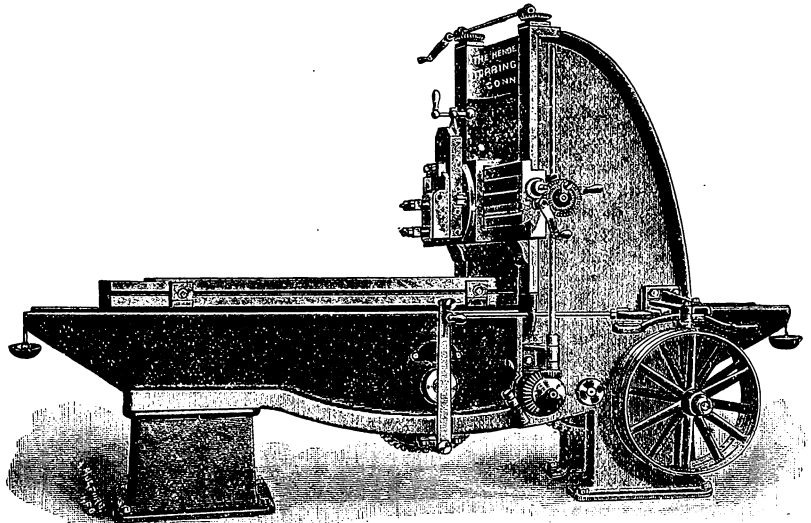
ALUMINUM.

The Pittsburgh Reduction Co.,

116 Water St., Pittsburgh, Pa.,

Offer Aluminum guaranteed equal in purity to the best in the market, at lowest rates obtainable.

**ALUMINUM SHEET, WIRE,
AND CASTINGS.**



Iron Planers at Reduced Prices.

We have on hand a few new planers of this pattern, and in order to dispose of them quickly, we would make a good reduction in price of same. The sizes are 16 inch, 22 inch, 24 inch and 27 inch. If you are in need of a good planer write us for prices on these.

The Hendey Machine Co., Torrington, Conn.

DO YOU BORE CYLINDERS?

THE HORIZONTAL BORING MACHINE

IS A SPECIAL TOOL FOR THIS PURPOSE.

SEND FOR PARTICULARS TO

NEWARK MACHINE TOOL WORKS

NEWARK, N. J.

J. A. FAY & CO., CHICAGO, WESTERN AGENTS.

STEARNS *

**T
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N
S**

The official seal has been placed on the time records made by J. S. Johnson on a Stearns Wheel for all distances from 100 yards and two-thirds of a mile, both inclusive. The League of American Wheelmen recognize no other records.

No wheel could have won higher honors; none won as high.

E. C. Stearns & Co., Syracuse, N. Y.

ARE YOU HERE TO MAKE MONEY?

IF SO, THE PRICES WE ARE MAKING ON
OIL HEATERS AND GAS STOVES
WILL INTEREST YOU.

B. & B. Stoves are the Leaders.

B. & B. Combination Oil Heaters and Cook Stoves are a great success, as proven by the many testimonials received from all parts of the country.

Every Stove is mounted on rollers, and can easily be moved from room to room. They can be used in place of a range in the kitchen or in place of a base-burner in the parlor. They are thoroughly well adapted to all requirements, combining as they do all the qualities of a first-class Oil Heater and an elegant Parlor Cook Stove.

If you happen to have one of them upstairs, the tank can easily be removed and taken down to the kitchen to be filled, and again replaced in the Stove.

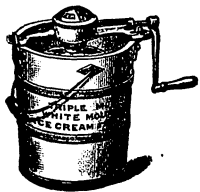
Those who have used the old style Stove with tanks fastened in them as tight as if cast in the iron will appreciate this feature. They can be fitted with our 2-hole, 3-hole or 4-hole Extension Tops for regular 8-inch ware. We want your trade, and if you will give us a chance to quote you prices we will have it.



ASK FOR OUR NEW 80-PAGE CATALOGUE.

W. W. MONTAGUE & CO., San Francisco, General Agents for the Pacific Coast.

The Glazier Stove Co., Mfrs., CHELSEA, MICH.

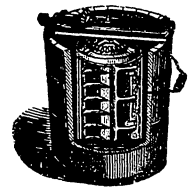


The standard by which the merits of a Freezer are gauged is, how near it comes to being as perfect as the

WHITE MOUNTAIN ICE CREAM FREEZER.

It always has been, and is still, the best. Try them.

Manufactured by The White Mountain Freezer Co., Nashua, N. H.



THE OLD RELIABLE STANDARD FREEZER

has the reputation of being the BEST ICE CREAM FREEZER ever introduced. STRENGTH, DURABILITY, NEATNESS AND EFFICIENCY are prominent points in the manufacture. Full Size Can, CEDAR TUB, Detachable Hinged Crossbar, Self-adjusting Vibratory Scraper, etc.

Write for Illustrated Circular, Price-List and Discounts of STANDARD, GOOD LUCK, MODEL and MACHINE Freezers.

CHAS. W. PACKER, Mfr.,
20 North Fourth Street, Philadelphia.



Call for Our Banner Bolt Snap.

This snap has many important advantages over other makes of Bolt Snaps, viz.: It is lighter, the spring is entirely covered and protected from foreign substances and freezing, and is lower in price.

Made in all sizes: Round, Loop and Open Eye. We are headquarters and the most extensive manufacturers in Saddlery, Coach and General Hardware Specialties.

Covert's Saddlery Works,

FARMER, N. Y., U. S. A.

Hardware Dealers Can Profitably SELL BICYCLES.

There is a large trade in Bicycles in all parts of the country and much of that trade naturally belongs to dealers in hardware. Good bicycles meet with a ready sale and pay a fair percentage of profit.

COLUMBIAS

Are the representative high grade machines in America. A Columbia is the easiest machine to sell to the best trade because it is unquestionably the standard wheel of the world.

We want enterprising agents of good standing and solicit correspondence.

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THE WILLIAMS PRINTING CO.,

Commercial Printers AND Binders

ESTIMATES FURNISHED FOR ALL CLASSES OF WORK.

96 98, 100 & 102 READE ST.,

NEW YORK

SHEPARD'S
LIGHTNING
FREEZER.

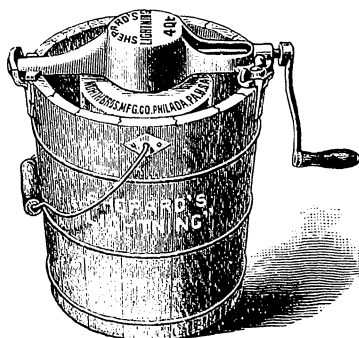
BETTER THAN EVER.

ELECTRIC WELDED
WIRE HOOP PAIRS.

Twice as Strong as Flat Hoops.

Guaranteed Not to Fall Off.

For Particulars, Prices and Discounts Write
to Sole Manufacturers,



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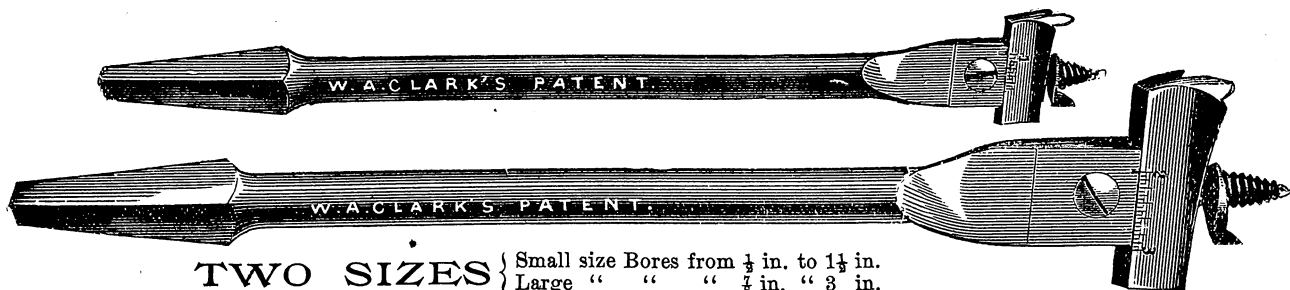
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60 & 12½

NORTH BROS. MFG. CO.,

Philadelphia,
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THE WM. A. CLARK PATENT EXPANSIVE BIT.



TWO SIZES } Small size Bores from $\frac{1}{2}$ in. to $1\frac{1}{2}$ in.
 Large " " " $\frac{3}{4}$ in. " 3 in.

SPECIAL CUTTERS: No. 5—For Large Bit, Bores from 3 in. to 4 in. No. 6—For Large Bit, Bores from 4 in. to 5 in.

Stock and workmanship superior to all others. Every part interchangeable.

Quality guaranteed. For sale by all Hardware Dealers.

Manufactured by **R. H. BROWN & CO.,** New Haven Conn.

*You take no risk on the quality
 We make only the best!*



**Sand
 Papers**
 IN
 Reams and Roll

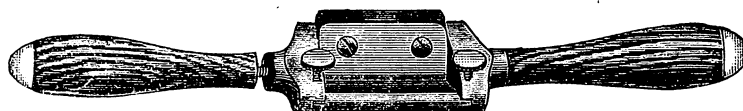
**Flint Paper
 Garnet Paper
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HAIR FELTING for covering Boilers, Steam and Water Pipe, and lining Refrigerators.

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 67 BECKMAN STREET, NEW YORK.
 143 MILK STREET, BOSTON!
 182 LAKE STREET, CHICAGO

Four Faced Spoke Shave, No. 2.



This Shave has a throat regulator which will present to the knife four faces: One flat, two oval or convex and one concave.

With either face a wide or narrow throat may be had. The regulator can be changed in a moment by use of the two thumb screws, as seen in the cut.

The knife is also adjustable by screw like other shaves. Either handle may be taken off to work in cramped places. The body of the tool and metal tips to the cocobola handles are polished and nickel plated. All that any other shave will do, this will also do, and then it will do some more.

Length of Blade, 2 inches.

Weight, 10 ounces.

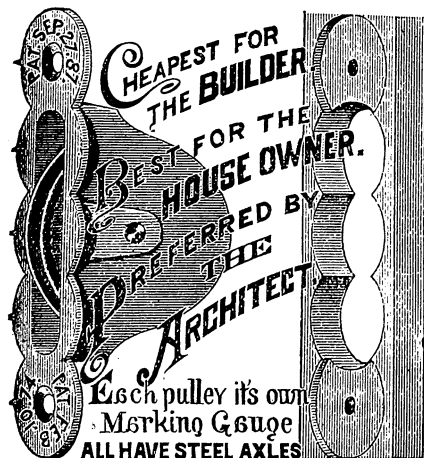
Extreme length, 11 inches.

Price each, \$1.00.

MILLERS FALLS CO.,

No. 93 Reade Street, New York.

Palmer's Common Sense Frame Pulley.



MANUFACTURED BY

PALMER HARDWARE MFG. CO., Troy, N. Y.



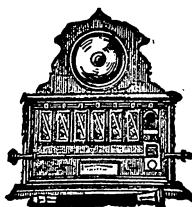
**COOK'S
 PATENT
 LEVEL.**

Made in Wood and Iron. Every Level Fully Guaranteed.

Inquire at your nearest hardware store for them. If not in stock, send to

TAKE NO
 OTHER.

DAVIS & COOK,
 WATERTOWN, N. Y.



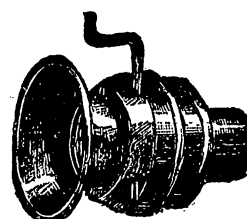
W. R. OSTRANDER & CO.,

204 FULTON STREET, NEW YORK,

Manufacturers of

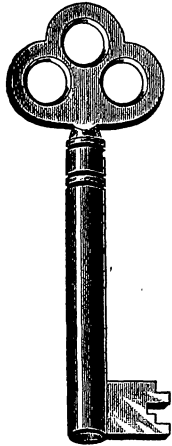
**SPEAKING TUBES, WHISTLES, ORAL, ELECTRIC
 MECHANICAL AND PNEUMATIC ANNUNCIATORS
 AND BELLS.**

Complete outfits of Speaking Tubes, Whistles Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave., near Knickerbocker, Brooklyn, N. Y.



CABINET LOCKS

OF EVERY KIND.



DRAWER LOCKS,

CUPBOARD LOCKS,

WARDROBE LOCKS,

CHEST LOCKS.

DESK LOCKS.

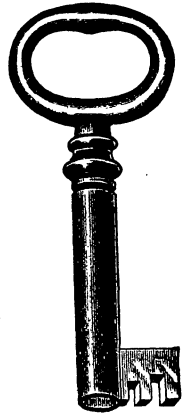
A complete line of more than 1000 list numbers exclusive of our old and complete line of

YALE CABINET LOCKS.

THE YALE & TOWNE M'F'G CO.,

STAMFORD, CONNECTICUT.

New York. Chicago. Philadelphia. Boston. Pittsburg. San Francisco.



THE DEALER who sells what
THE PEOPLE ask for.

MAKES FRIENDS and MONEY, and
SAVES TIME and TROUBLE.

The people ask for

**LePage's
Liquid
Glue,** And the people are right.

It is the strongest and best glue made. It has been imitated, but never equalled. Be sure to get what you order and ACCEPT NO SUBSTITUTES.

Our name is on every label

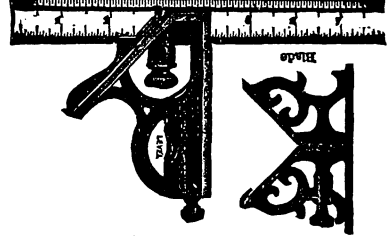
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MACHINISTS' FINE TOOLS.

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ATHOL, MASS., U. S. A.

ATHOL MACHINE CO., Selling Agents.

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Ratchet Wrenches.

Made of best forged Tool Steel; are easily and readily adjusted and controlled. Can be made reversible instantly without removing from their work, by throwing over the lever in slot of the handle.

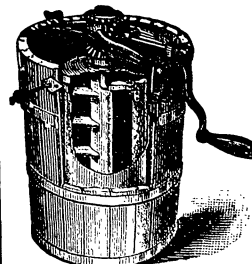
The Set of Combination Tools No. 1 includes the wrench, two sockets, one for screw-driver, bit or reamer shank, with wood handle, and one socket



H
for drill shank and feed nut. The jaws on this wrench open from 3-16 to 1 1/4 inches.

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"Home" Freezers,
2 to 10 quarts.

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Sundry Ice-Cream
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Manufacture To Order
SPECIALTIES & NOVELTIES, PATENTED ARTICLES.
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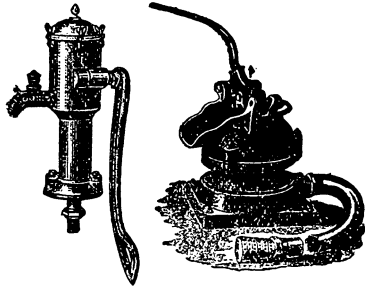
A LARGE CAPACITY AND EASY WORKING PUMP FOR

Water Works, Sewer Contractors, Foundation Builders, Mines, Quarries,

Fig. 209.

Fig. 381.

Fig. 145.



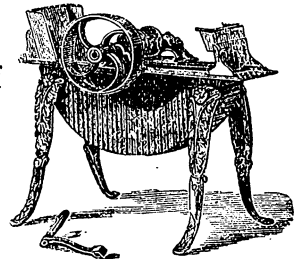
or wherever it is desired to raise a large quantity of water by
hand power.

The pump has large valves (accessible by hand), and will pump water containing sand, gravel, sewage matter, &c., without choking or any perceptible wear.

CAPACITY

from 3,000 to 4,500 gallons per hour.

These pumps are simple, durable and low priced.
Made either as shown in cut for Hose or for **IRON** Pipe Suction underneath.



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FACTORY SALEM O.S.A.
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HENTON & HUBBELL
GEN'L WESTERN AGTS:
55 & 57 N. CLINTON ST.
CHICAGO, ILL.

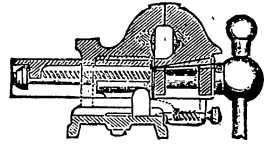
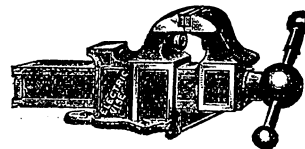
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IT HAS QUALITIES THAT ARE
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Rapid, Active, Prompt.

One movement in and out, one
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The Capital Machine Tool Co., AUBURN, N. Y.

PRENTISS' PAT. VISES.

The Leaders for 20 Years.

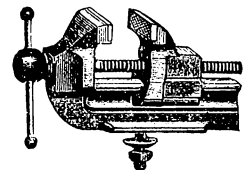
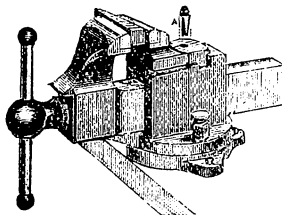
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PRENTISS VISE COMPANY,

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THE LARGEST PUMP WORKS EXCLUSIVELY IN THE UNITED STATES.
+ CATALOGUES FREE +

Ashland Pump and Hay Tool Works.

SHARP TOOLS are a NECESSITY to a good workman,

But without a GOOD WHETSTONE they are an impossibility

That is why it is always economy to buy

PIKE'S WHETSTONES.

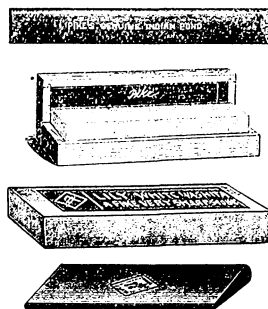
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Grit, Quick Cutting.

Scythe Stones.

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The New York Safety Dumb Waiter.
"The Manhattan Dumb Waiter."
"The Improved Humphrey Hand Elevator."
Made specially to be sold by Hardware Stores.
Thousands in use. Catalogues on application.
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SPEAKING TUBE ETC.
FOR ILLUSTRATED CATALOGUE

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THEATRICAL HARDWARE.
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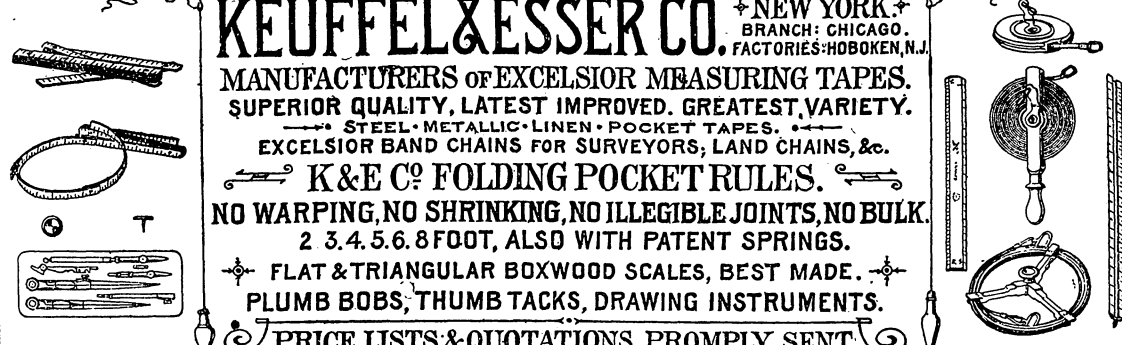
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SUPERIOR QUALITY. LATEST IMPROVED. GREATEST VARIETY.
— STEEL • METALLIC • LINEN • POCKET TAPES. —
EXCELSIOR BAND CHAINS FOR SURVEYORS; LAND CHAINS, &c.


K & E CO FOLDING POCKET RULES.
NO WARPING, NO SHRINKING, NO ILLEGIBLE JOINTS, NO BULK.
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PLUMB BOBS, THUMB TACKS, DRAWING INSTRUMENTS.

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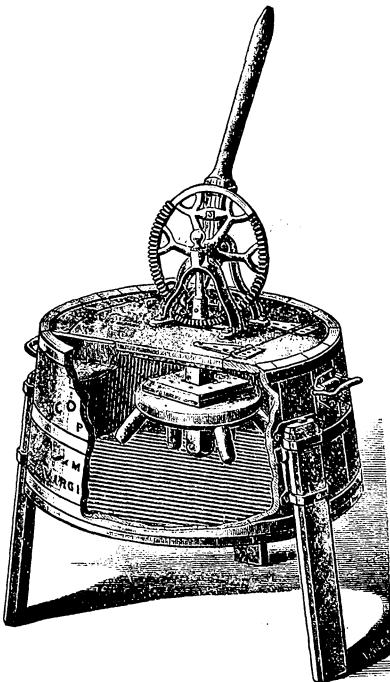
IRON INSTEAD OF WOOD.
GALVANIZED IRON
TUBING and CURB,
— FOR —
CHAIN PUMPS,
(Kegler's Patent)
Are Giving Universal Satisfaction,
BECAUSE:



They do not rust and accumulate filth—always clean. Extreme lightness is combined with strength and durability. No freezing. No waste of water by reason of enlarged reservoir at top of tubing. No annoying wheel at bottom. Easy to handle.
Tubing weighs less than 1/4 lb. per ft., is connected by couplings and can be attached to any make of curb.

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Bellevue Pump Co., Bellevue, Iowa.

Columbia Washing Machine.



1. The Columbia is made of the finest VIRGINIA WHITE CEDAR and will last a lifetime.
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3. The BOTTOM and SIDES are corrugated on the inside of the washer ONLY.
The bottom of the Columbia is in the LARGE END, thus preventing clothes from WEDGING. Write for prices.

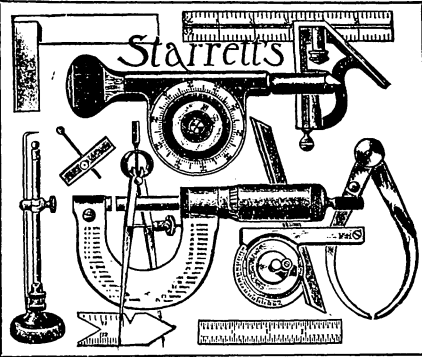
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Skilled mechanics prefer them

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Best in workmanship
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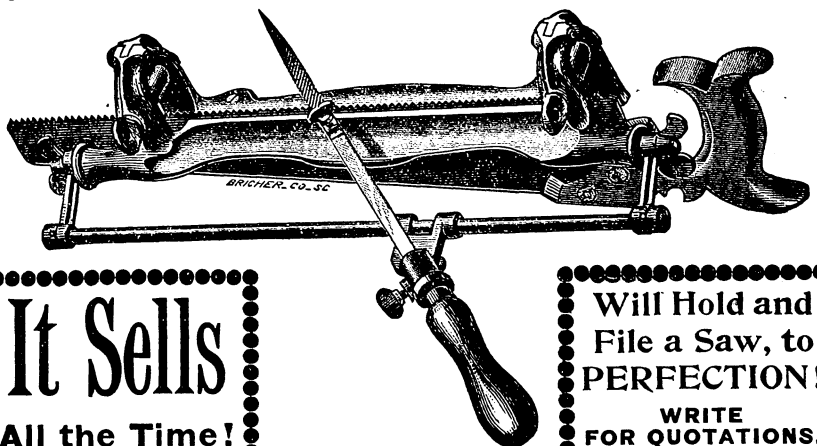


For all workers in metal or wood
Every tool warranted satisfactory

FINE TOOLS

Send for Catalogue L. S. Starrett, Athol, Mass.

ELKINS' PATENT SAW FILER & CLAMP.



It Sells

All the Time!

Will Hold and File a Saw, to PERFECTION!

WRITE FOR QUOTATIONS.

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IT PAYS. Nothing about a Hardware Store looks so well as clean shelves and the goods neatly boxed with a fresh sample on the front. Customers are attracted by such a display of care, and notice and buy things that would ordinarily go without notice. The Boxes are inexpensive, save the goods, make a big show for a small investment and help the salesman. Send to **JESSE JONES & CO., 615 and 617 Commerce St., Phila., Pa.** for Catalogue of prices styles, and references.

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OPERATING

Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y. Woodrough & McParlin, Cincinnati, O. Woodrough & Clemson, Boston, Mass. Monhagen Steel Works, Middletown, N. Y. Richardson Brothers, Newark, N. J. Harvey W. Peace Co., Brooklyn, N. Y. Pennsylvania Saw Co., Philadelphia, Pa.

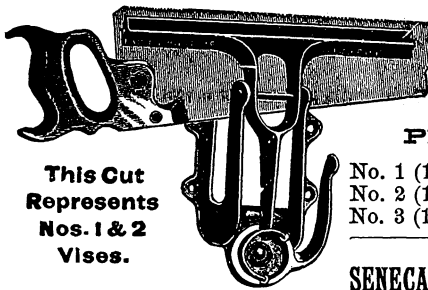
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96 & 98 READE ST.,

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SAWS

WENTWORTH'S PATENT NOISELESS SAW VISES, WITH RUBBER CUSHIONED JAWS.



This Cut
Represents
Nos. 1 & 2
Vises.

Prevent all vibration and render Saw Filing noiseless.
Will make no more noise than Filing on a Solid Piece of Iron.

Have a Larger Sale than All Other Kinds Combined.

PRICE LIST.

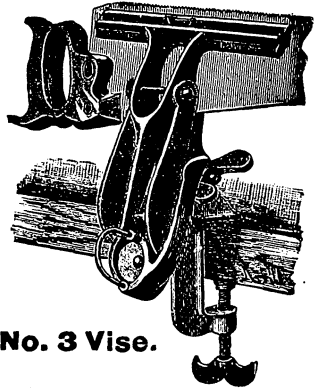
	PER DOZ.
No. 1 (11 inch Jaws),	\$15.00
No. 2 (15 inch Jaws),	21.00
No. 3 (11 inch Jaws),	18.00

LIBERAL DISCOUNT TO THE TRADE.

LONGEST JAWS, HEAVIEST AND
BEST FINISHED.
Sold by all leading jobbers of general
Hardware at Factory Prices.

—MANUFACTURED BY—

SENECA FALLS MFG. CO., 255 Water St., Seneca Falls, N. Y.



No. 3 Vise.

BUSINESS ESTABLISHED
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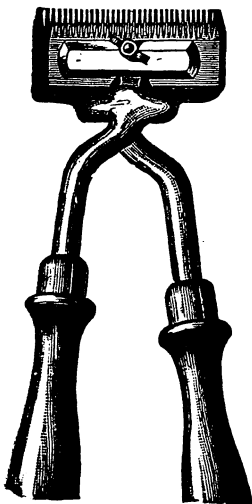
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JOS. F. McCOY CO.,

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Headquarters for

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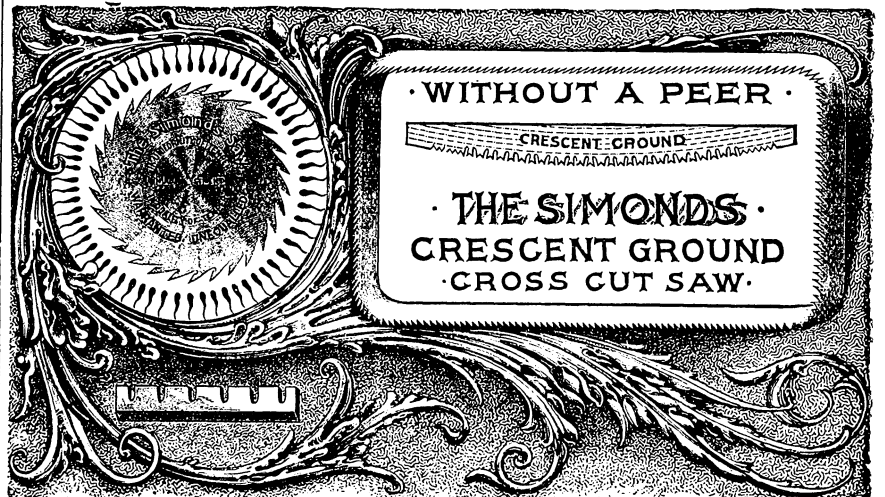


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ALSO
THE "BELL"
AND
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Horse

Clippers.

At prices to suit
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· CRESCENT GROUND ·
· THE SIMONDS ·
· CRESCENT GROUND ·
· CROSS CUT SAW ·

Simonds Mfg. Co. Simonds Saw Co.

FITCHBURG, MASS. CHICAGO, ILL. SAN FRANCISCO CAL. PORTLAND, ORE.

The Taintor Positive Saw Set.

Mechanics are now inquiring for this tool, and Hardware Dealers should have them in stock, or at least have a sample.

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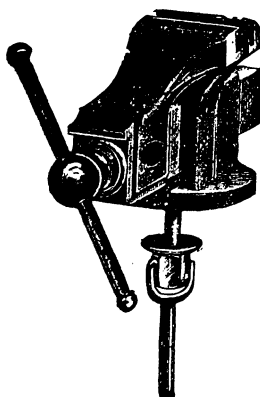
Makers of a large line of

STANDARD

Hardware Specialties.

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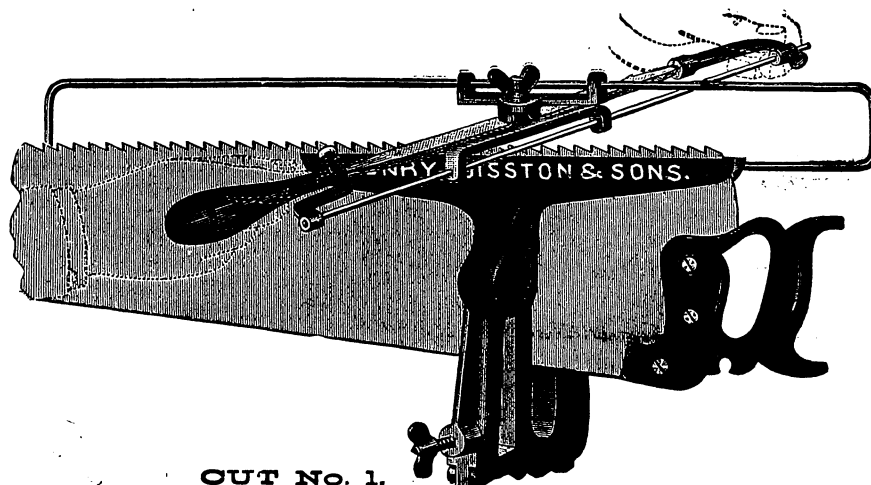
**HOLLANDS'
OFFSET JAW
VISE.**

Specially adapted
for drill press work
where chucks can
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equally good for
special or regular
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**Hollands Mfg. Co.
ERIE, PA.,**
Manufacturers all
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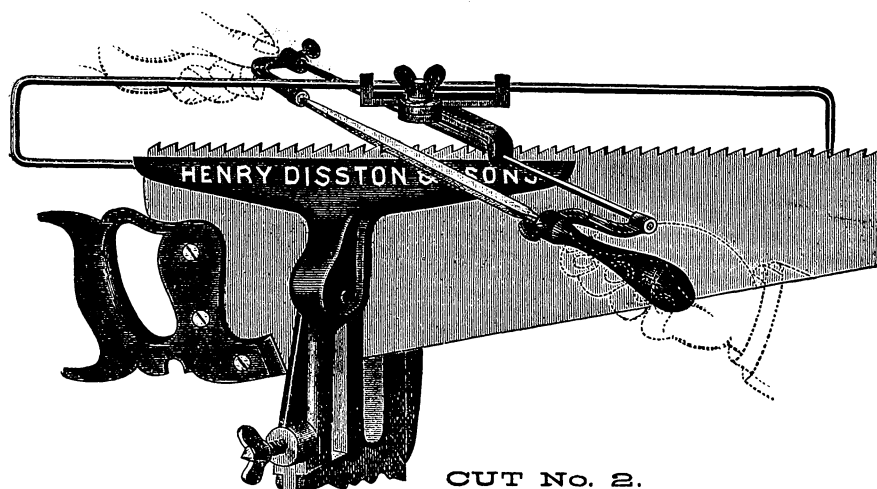
DISSTON'S Improved Saw Clamp AND FILING GUIDE.

ESPECIALLY DESIGNED TO ASSIST THOSE NOT SKILLED IN THE ART
OF SAW FILING TO FILE A SAW CORRECTLY.



CUT No. 1.

Cut No. 1 shows a saw and the attachment in proper position for filing the first side; and Cut No. 2 shows the saw and attachment reversed and in position to file the second side. There are three marks on one of the hubs of the swivel attachment, and one mark on the other. One of the three marks shows when it is in position No. 1, and the other designates when it is in position as shown in No. 2. The third, or centre, marks show when it is in position for filing Rip Saws.



CUT No. 2.

To obtain the correct position, loosen the wing nut and move the guide around to the point desired; after tightening wing nut, loosen screw in file handle, then turn handle until file gives the shape tooth wanted.

A good way is to select a tooth of correct shape and let file down into it, tighten set screw in handle, then file a tooth to see if the shape suits. If not turn the file a little to the right or left and try another tooth until the proper shape is obtained. Then file every other tooth, see cut No. 1; when one side is filed, reverse saw and attachment and adjust as in No. 2, and file the other teeth. For Rip Saws, place the file at right angles with the saw and file every tooth. Always keep the file as nearly horizontal as possible.

This filing guide is sold only attached to our No. 3 Improved Clamp or Vise, and not sold separately. We recommend this as the best saw clamp on the market, being quickly and easily adjusted, and not liable to get out of order.

Write for price including No. 3 Clamp, Filing Guide, File and Handle complete. Packed one in a wooden box.

Henry Disston & Sons, Philadelphia, Penn. INCORPORATED,

Samuel W. Allerton, Pres.

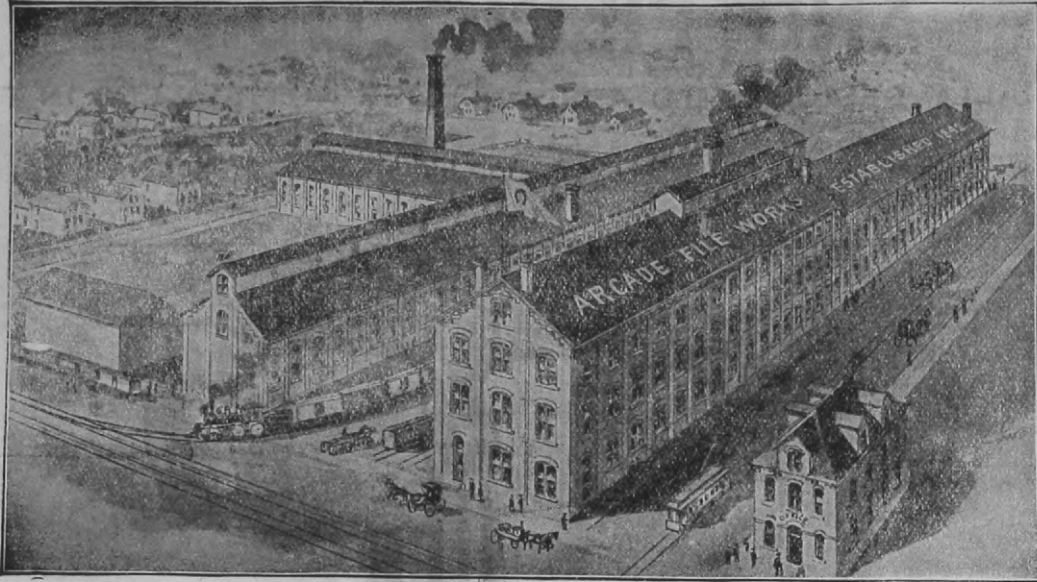
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THE BEST EQUIPPED FILE WORKS IN THE WORLD.

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THIRD REVISED EDITION.

THE IRON AGE STANDARD HARDWARE LISTS

FOR USE IN PRICE BOOKS.

Compiled by R. R. WILLIAMS, Hardware Editor of The Iron Age.

This pamphlet contains the principal standard Hardware price-lists in as clear and compact an arrangement as possible, so as to permit their being advantageously cut out and inserted in the price book. In order to make them adapted to this use they are printed on thin and tough paper of fine quality and on only one side of the paper.

Saucepans and Round Bolders.

Pints.	Plain	Turnd.	Tind or End.
1	\$0.30	.35	.39
1½	.32	.37	.44
2	.35	.39	.48
3	.42	.47	.56
Quarts.			
2	.50	.56	.63
2½	.53	.59	.68
3	.55	.62	.73
4	.60	.68	.84
5	.65	.75	.96
6	.70	.81	1.11
7	.75	.84	1.21
Gallons.			
2	.85	.96	1.31
2½	1.05	1.18	1.56
3	1.20	1.35	1.70

The success of the effort to give the lists in small space is illustrated in many of the lists, in which a clear and condensed arrangement is secured. For instance, the wrench list occupies but 3 inches by ½ inch, while the list of Stove Hollow Ware, in very small space, gives the list prices on a large and important line of goods which often occupy several pages in catalogues. In several lists, such as Strap and T Hinges and Butts, a new arrangement is adopted, which is regarded as presenting these lists in a very convenient as well as condensed form.

As is obvious from the lists herewith reproduced, the shape and size of the different lists varies greatly, the aim being to give each list the smallest and most convenient arrangement possible. None of the lists are, however, more than 3½ x 6 inches in size, very few of them being as large as this and most of them very much smaller. In use it is intended that they shall be trimmed closely before they are inserted in price books, when they may be attached either by one edge close to the hinge of the book, as will, perhaps, be most convenient with the larger lists, permitting the use of the entire page for memoranda, or the smaller lists may be pasted on the page in connection with the entries in regard to discounts, freights, &c. Many of the lists are so compact in arrangement as when thus inserted to leave ample room for recording quotations.

Wrenches.

Inches.	6	8	10	12	15	18	21
Black...	\$9.00	\$10.00	\$12.00	\$14.00	\$24.00	\$30.00	\$36.00
Bright..	10.00	11.00	14.00	16.00	26.00	32.00	38.00

and inserted in price books, and can be used in connection with any of The Iron Age Hardware Price Books.

That the Standard Hardware Price Lists meet a want of the trade is evident from the fact that a Third edition is already called for.

EVERY HARDWAREMAN SHOULD HAVE A COPY. Price 25 cts.

Sent, postpaid, on receipt of Price, by

DAVID WILLIAMS, Publisher and Bookseller, 96-102 Reade Street, N. Y.

Stove Hollow Ware.

Ground and Unground.

POTS, KETTLES, ETC. (CAST IRON.)						
No.....	6	7	8	9	10	11
Pots.....	\$0.65	.75	.85	1.00	1.25	1.75
Kettles.....	.55	.65	.70	.85	1.00	1.40
T Kettles.....	.75	.80	.90	1.00	1.25	....
Spiders.....	.27	.30	.35	.40	.50	.60
Griddles Round	.22	.25	.27	.30	....	....
" Long..	.40	.50	.60	.75	....	....

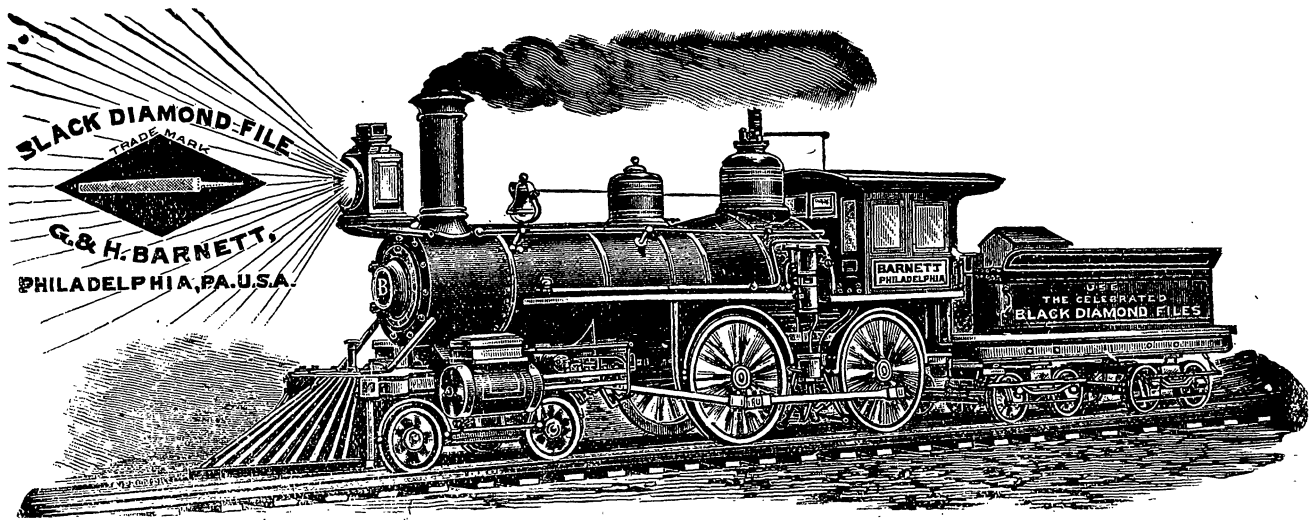
SCOTCH AND YANKEE BOWLS.

No.....	1	2	3	4	5	6
Scotch Bowls..	\$0.35	.40	.45	.50	.60	.70
Yankee Bowls.	.35	.45	.55	.65	.75	.90

Glue Pots.

Tinned or Enamelled

No.	4/0....	\$4.50	No.	2	....	\$8.40
	3/0....	5.00		3	....	10.26
	2/0....	5.50		4	....	12.42
	0	6.00		5	....	14.58
	1	6.75		6	....	16.94



THE LARGEST AND MOST COM-
PLETE FILE WORKS IN
THE WORLD.

NICHOLSON FILE CO.
PROVIDENCE, R. I.

3000
VARIETIES FILES
[X.F.] AND INCREMENT CUT FILES

J. M. KING & CO.,
WATERFORD, N. Y.

Manufacturers of
BUTTON'S



**Pat. Wire Cutter
AND PLIER COMBINED.**

Specially Adapted for Use on Wire Fence.

Also Manufacturers of BLACKSMITHS' and
MACHINISTS' STOCKS and DIES, PLUG and
TAPER TAPS, HAND, NUT and SCREW
TAPS, PIPE TAPS and REAMERS.

Price-List on Application.

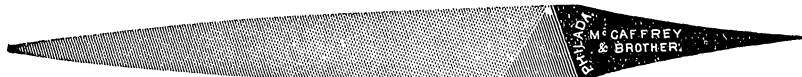
Established by DANIEL B. KING, 1829.

Philadelphia, 1876.



McCaffrey File Co.,
FIFTH and BERKS STS.,
PHILADELPHIA, PA.

For Superiority.



Manufacture and keep in stock a full line of **FILES** and **RASPS** only, for which we claim special ad-
vantages over the ordinary goods, and ask domestic and foreign buyers to allow us to compete for their trade.

Superiority acknowledged wherever used, sold or exhibited.

BEST
CRUCIBLE
STEEL.

"TROJAN" HORSE RASPS.

LOWEST
IN
PRICE

STRONGEST
TOOTH.

BANKER & WHITE,

(Troy File Works.)

TROY, N. Y.

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US
QUOTE.



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61 Fulton St., N. Y.
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STEEL STAMPS
For Every Purpose.
Steel Letters and Figures.
Burning Brands, Stencils,
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Figures and Letters, Sizes $\frac{1}{16}$ in to 3 in.
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Dies &c. Send for Reduced Price List.
We make a specialty of the Hardware Trade.
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Have established and maintained their reputation, for superiority,
against all Competitors, from

THE YEAR SEVENTEEN HUNDRED & FIFTY,
and are still in increasing demand. As in the past, it is the unalterable
DETERMINATION OF THE HOUSE TO SEND OUT NOTHING BUT WHAT IS OF THE HIGHEST POSSIBLE QUALITY.

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These goods have fully maintained their reputation as the best cutlery in the world for over

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BUFFALO EDGE TOOL WORKS,

RIDGWAY, PA.



N. Y. Mallet and Handle
WORKS.

MANUFACTURERS OF
MALLETS.
Also Cotton and Bale
Hooks.

Patented Feb. 13, 1877, a new
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Patented August 23, 1892.

Adapted to general use; also to the special use of boring and screw-driving in Angles, Corners, close to Washboards and Walls, and in all places difficult or impossible to reach with the ordinary Brace.

6, 7 and 8 inch SWEEPS.

Unequaled as a Corner Brace.

The crank-arm revolves at right angles to the bit.

The frame is readily and firmly held in any desired position with one hand.

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The operation is familiar, natural and convenient.

All parts are simple and durable.

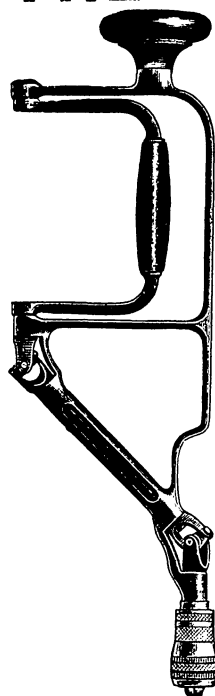
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The Most Complete Assortment in the U. S. of
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Buyers are cautioned against any parties who claim a recent connection (or any connection for over 20 years) with Buck Bros., or who represent goods as our make not stamped with the **BUCK'S HEAD** or **BUCK BROTHERS** in full.

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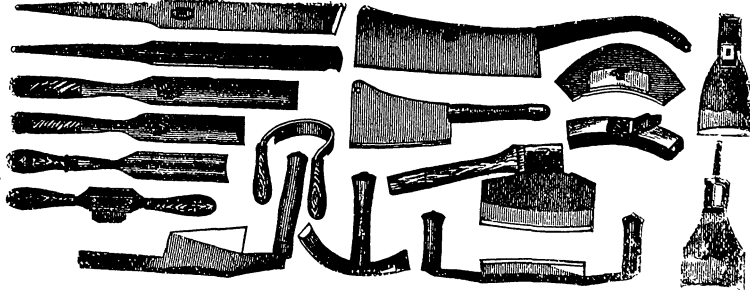


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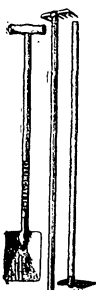
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The New M. and P. Bit Brace.

Strictly High Grade. 5 Sizes.



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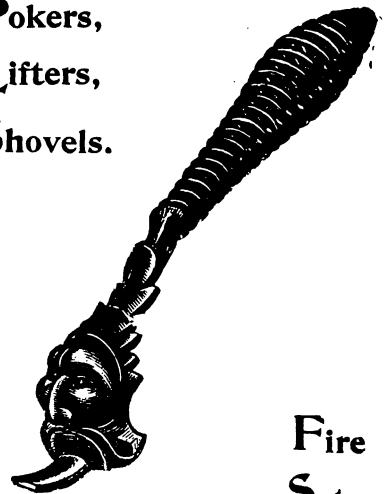
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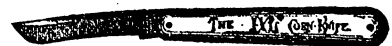
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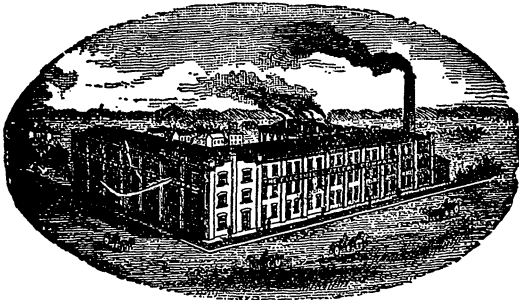
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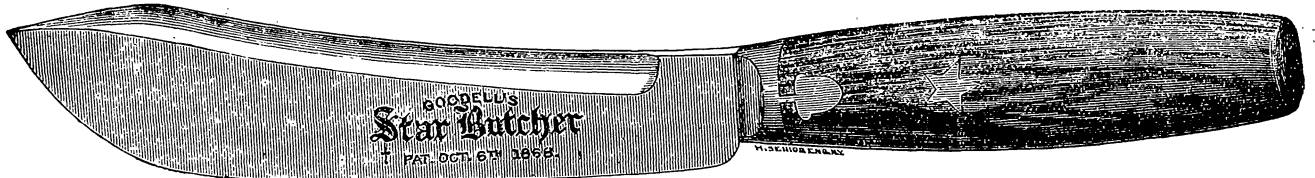
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WE DON'T KNOW HOW TO IMPROVE IT.

Blade is made of steel especially prepared for the purpose, and it is made just right; finish excellent; shape unsurpassed; the handle just fits the hand.

GENERAL APPEARANCE IRREPROACHABLE.

Made in sizes from 5 inch to 8 inch; a strictly first-class butcher knife at a moderate price.

WE HAVE OTHER BUTCHER KNIVES,

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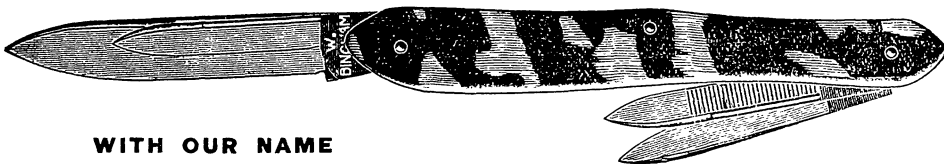
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That money
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Four highest Awards at the Chicago World's Fair tells the story that the "Anchor Brand" of Edge Tools and Hammers cannot be excelled. I have a cheaper Grade under the "Vulcan Brand."

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**The Bridgeport
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THE VICTORIA.

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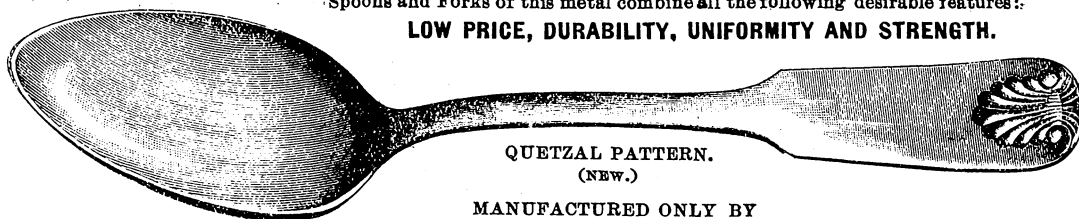
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Spoons and Forks of this metal combine all the following desirable features:

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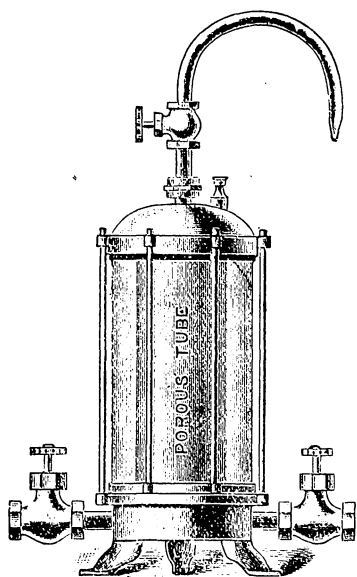
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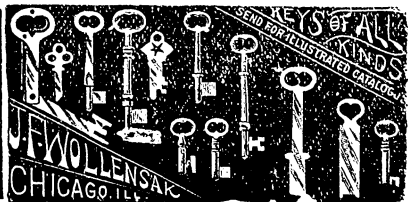
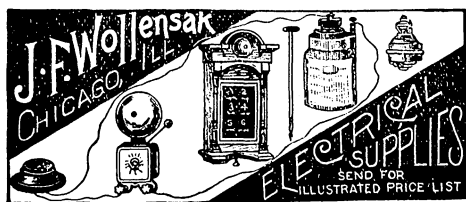
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We want a first class Hardware Dealer in every city and town to handle our Filters, and to those applying first, if satisfactory, we will give the agency.

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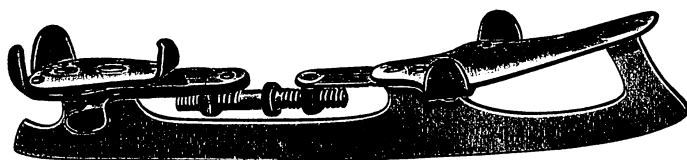
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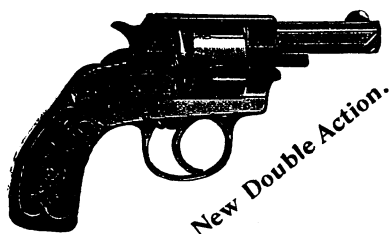
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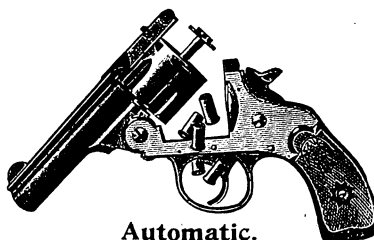


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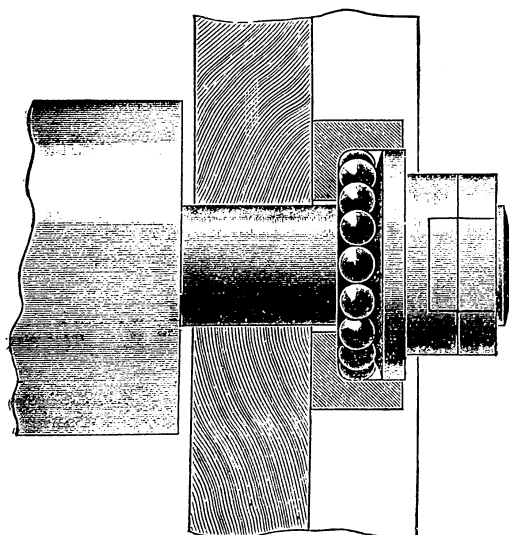
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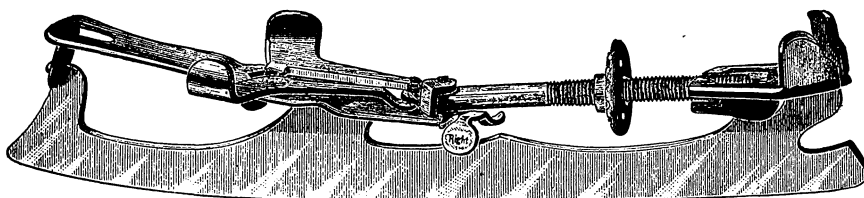
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THE LONG REACH SKATE

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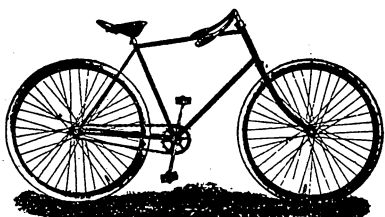


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— IF YOU USE —

PARAVASELINE.

It is a Lubricant that will prevent all kinds of metals from rusting.

WHEN YOU COME HOME AFTER SKATING

apply a light coat of Paravaseline to your skates and it will keep them in good condition.

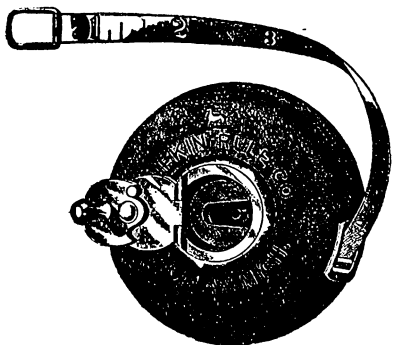
ONE TUBE WILL LAST A YEAR

and will be mailed to any address on receipt of 25 cents or you can get them at all hardware or skate stores.

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Entirely new. Handle or crank when closed is perfectly flush with leather case. Opens by pressing button on opposite side and folds out double, giving increased leverage. Best and most convenient steel tape on the market. Fully guaranteed. Will send samples on approval. We carry a complete stock of our goods at our New York Office, 20 Murray St.

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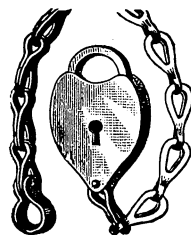
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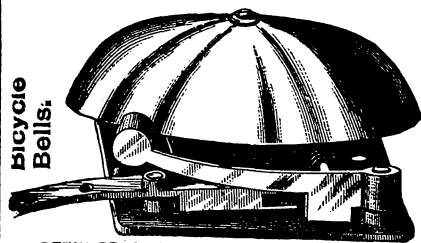
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Especially Low Prices

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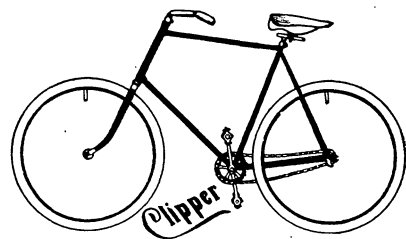
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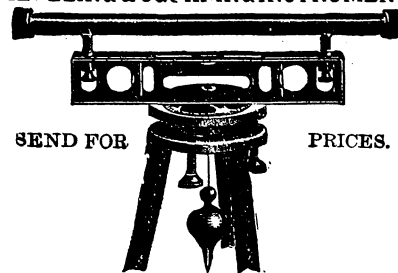
are built to please the dealer and rider.

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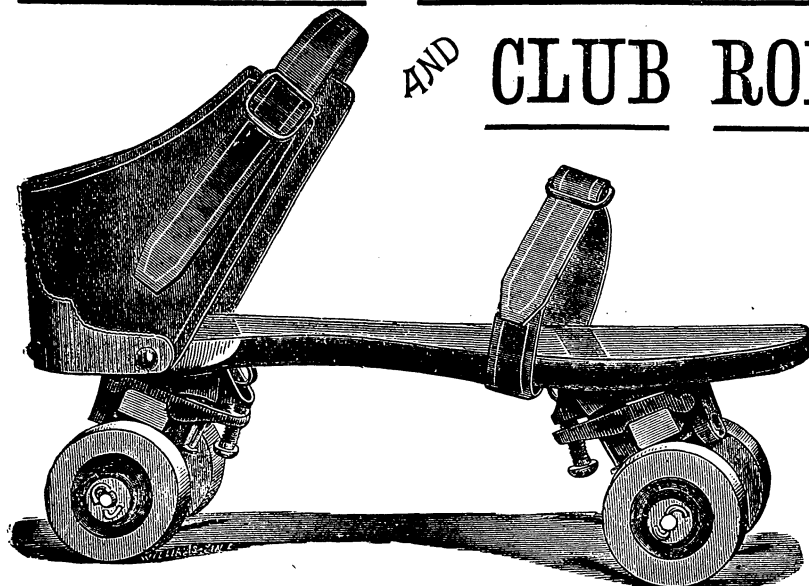
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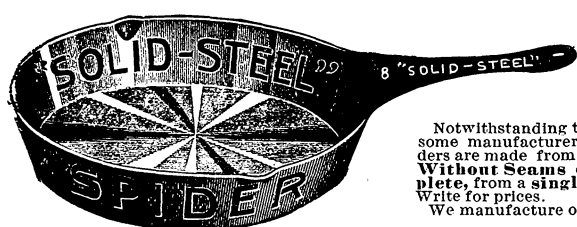


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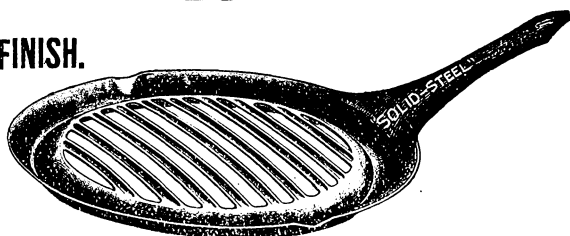
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Made without Seams or Rivets.

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We do Light and Heavy Stamping and Blanking. Also build Dies and Stamping Machinery.

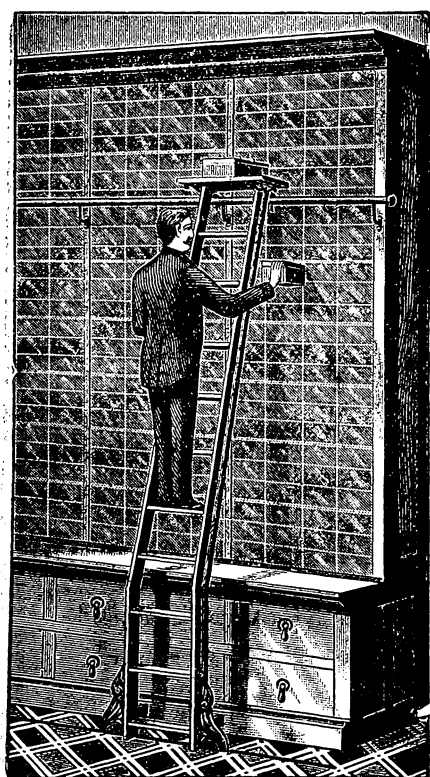
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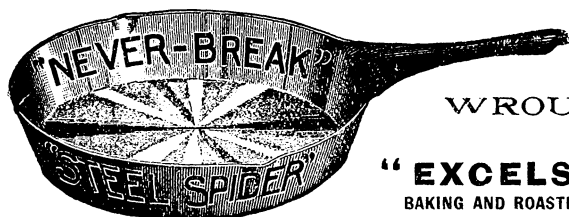
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THE BRONSON SUPPLY CO.,
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Globe Street Lamp.

Light your Streets and Driveways. The S. G. & L. CO. Tubular Globe Street Lamp

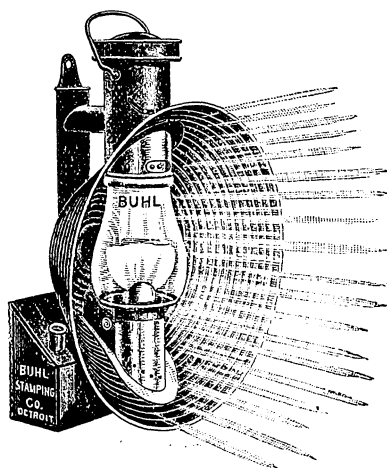
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Equal to the best Gas Light.
Will not Blow Out in the Strongest Wind.
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Buhl Tubular Headlight.

IMPROVED FOR 1893-94.

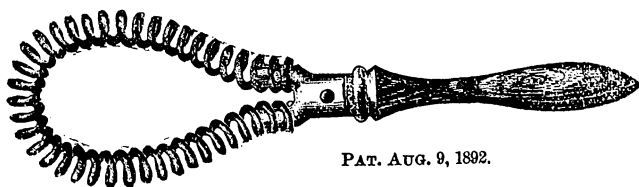
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THE BOSS DUST BEATER.



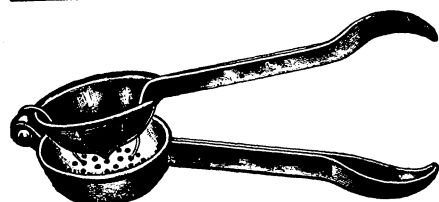
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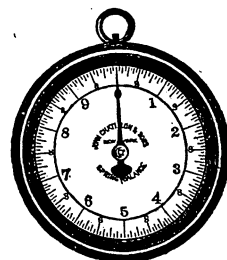
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If so you want our Squeezer. Positively the best. Suitable for any size Lemon. Write for samples, catalogue and prices.

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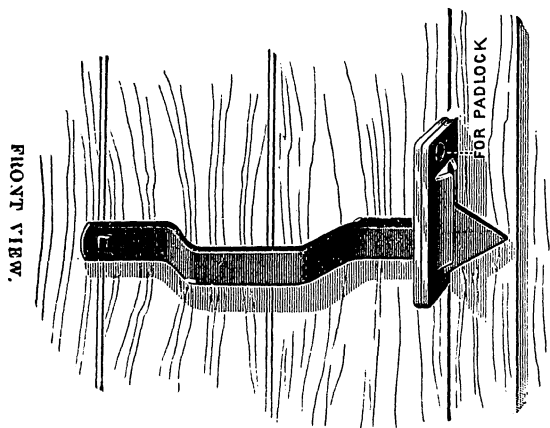
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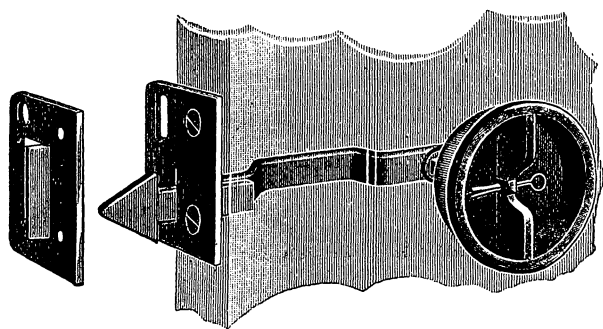
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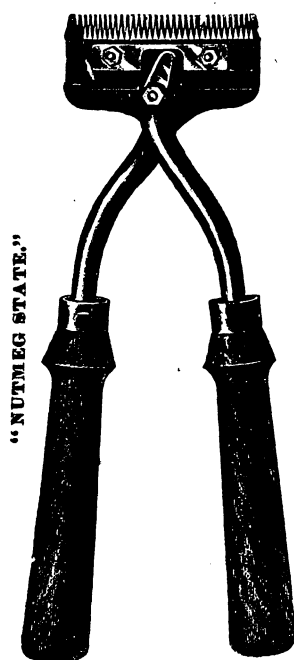
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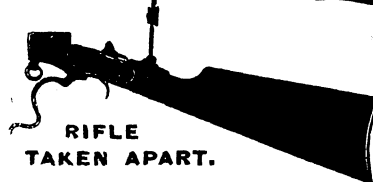
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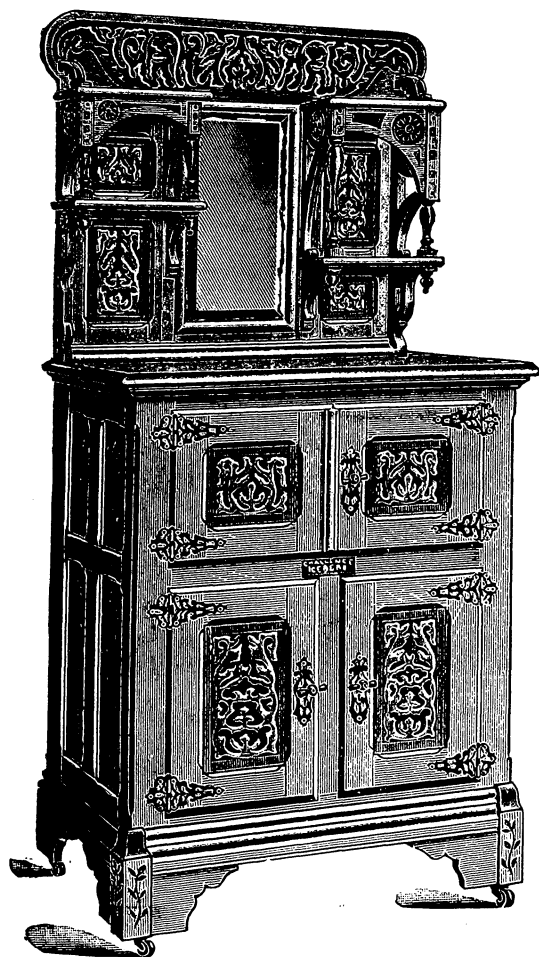
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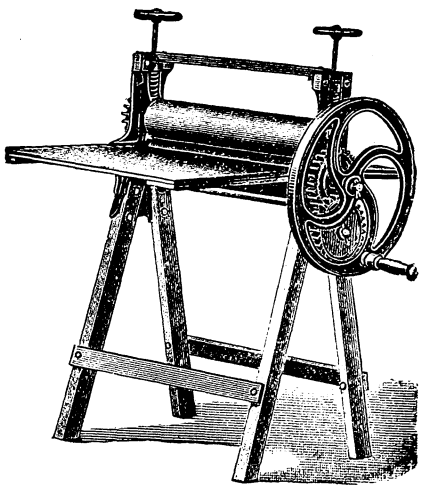
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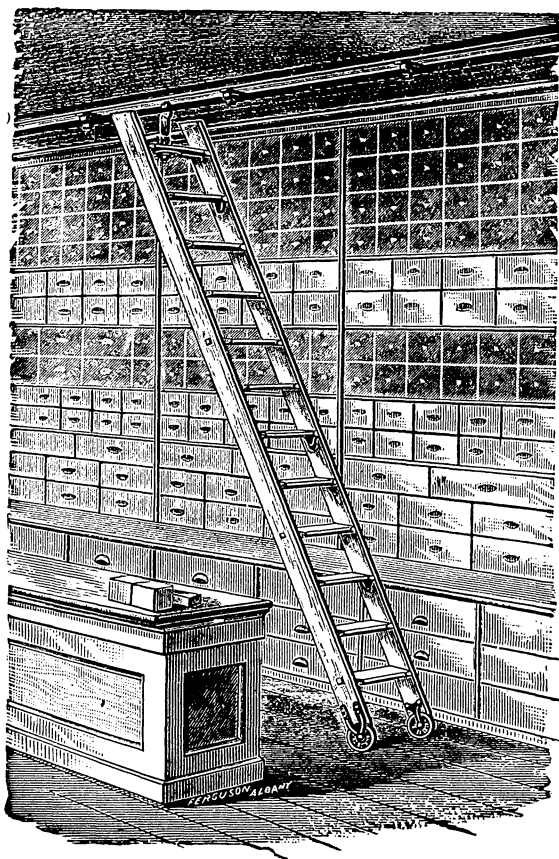
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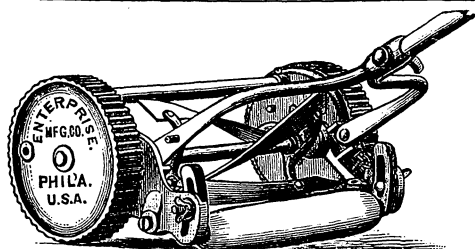


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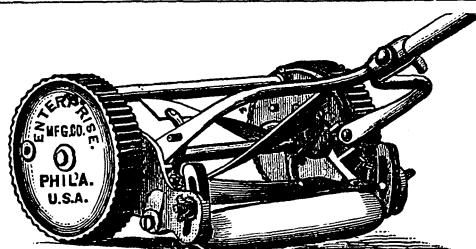
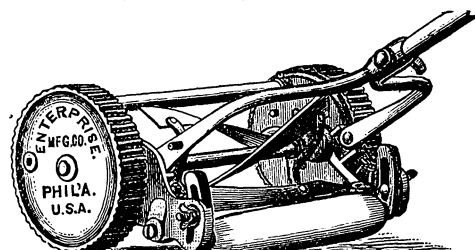
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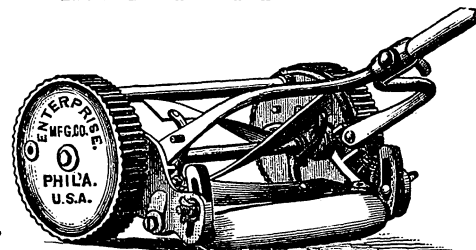
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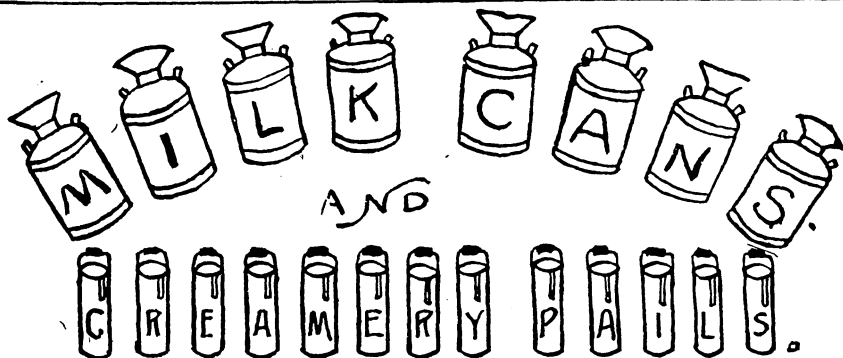
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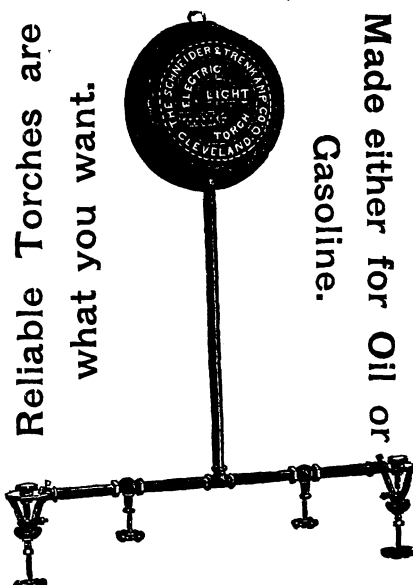
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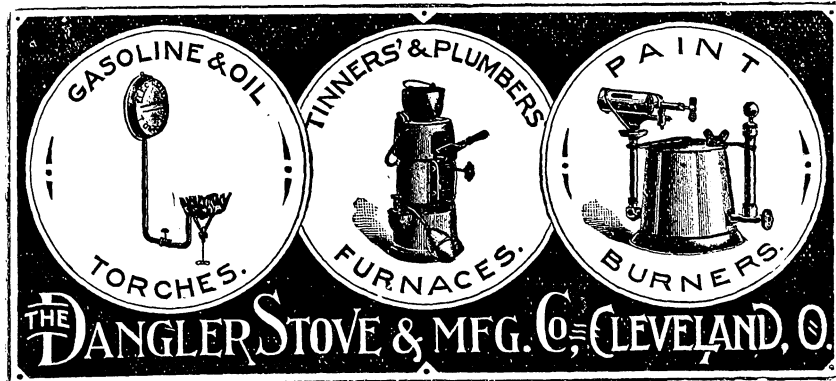
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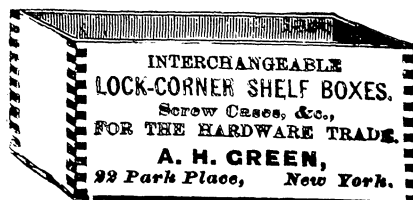
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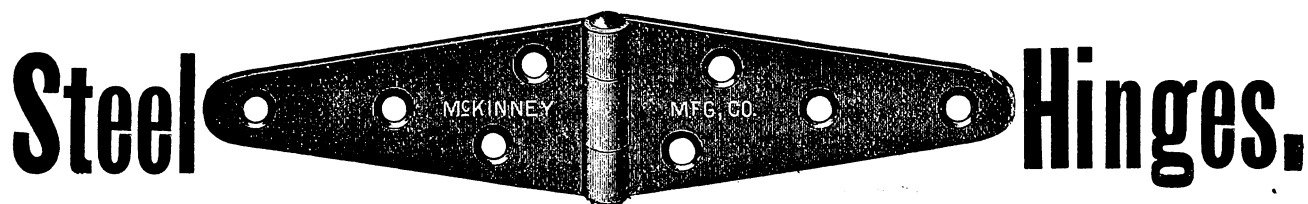
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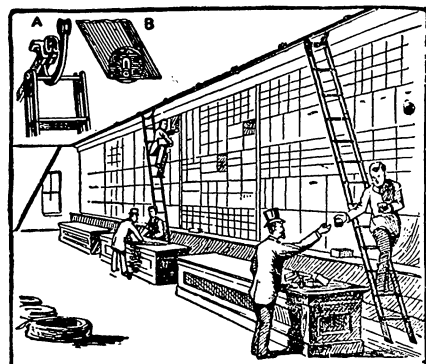
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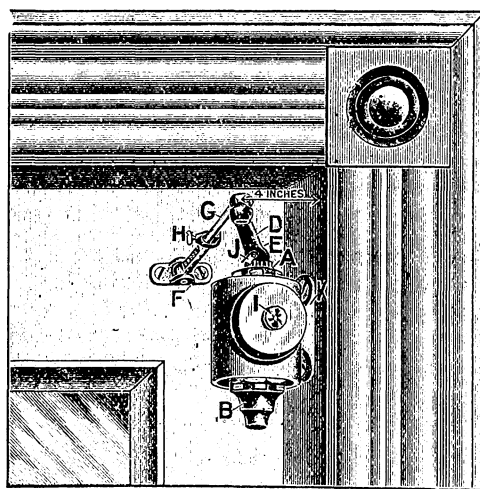
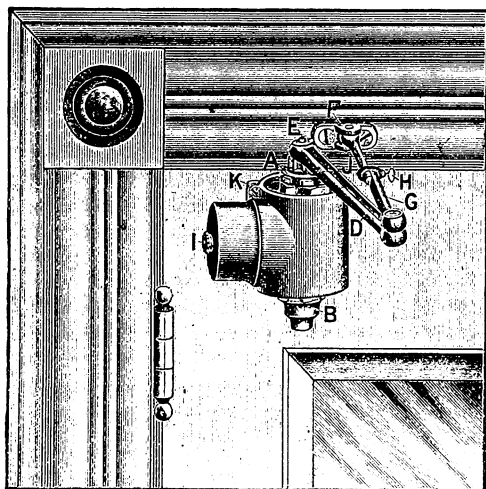
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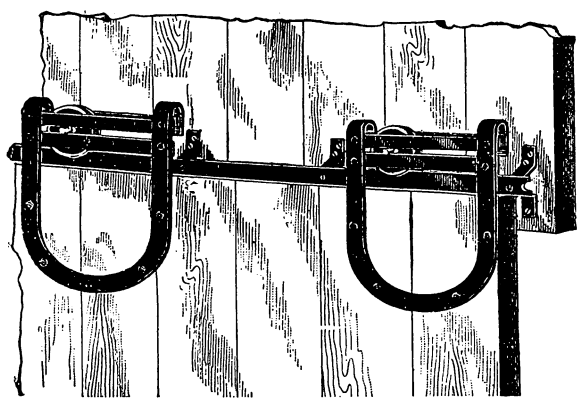


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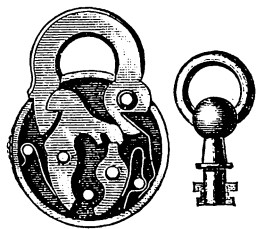
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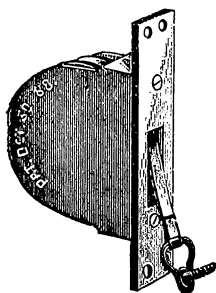
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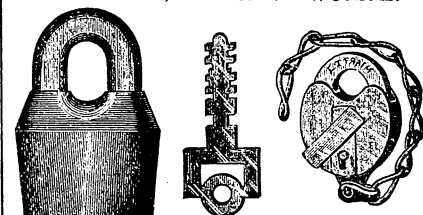
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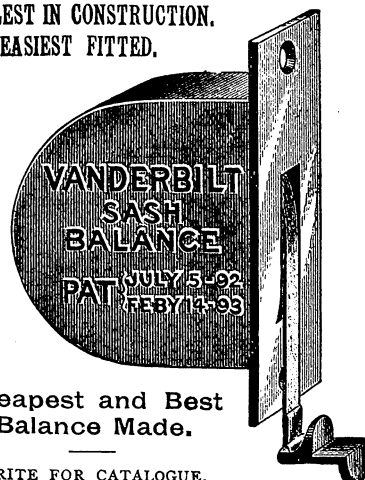
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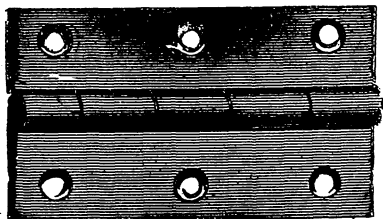


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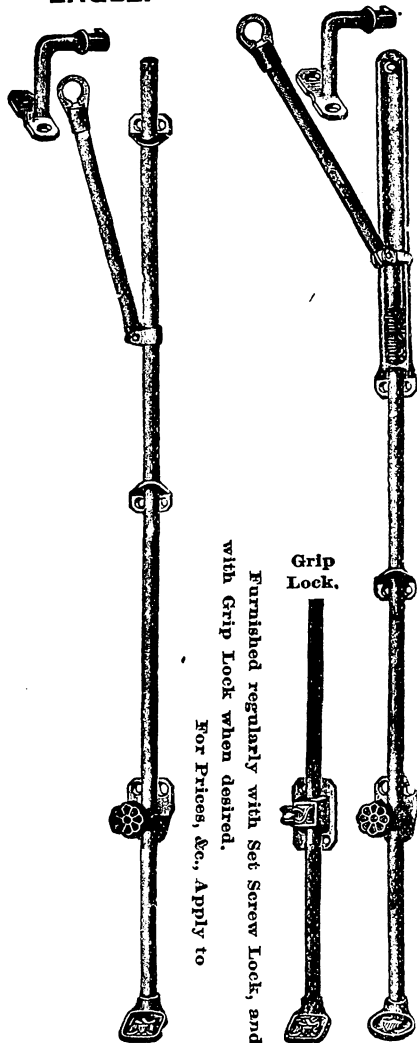
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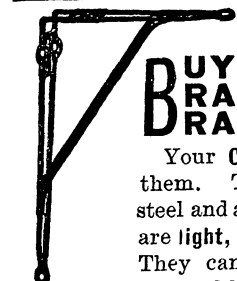
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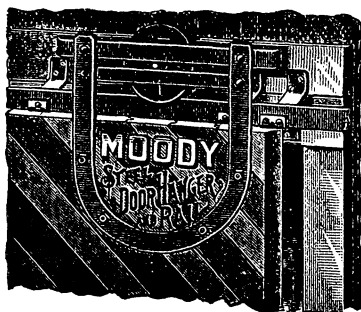
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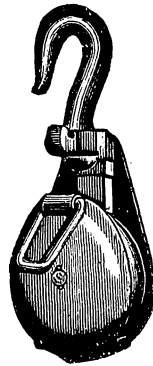
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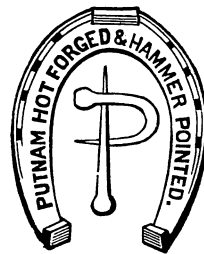
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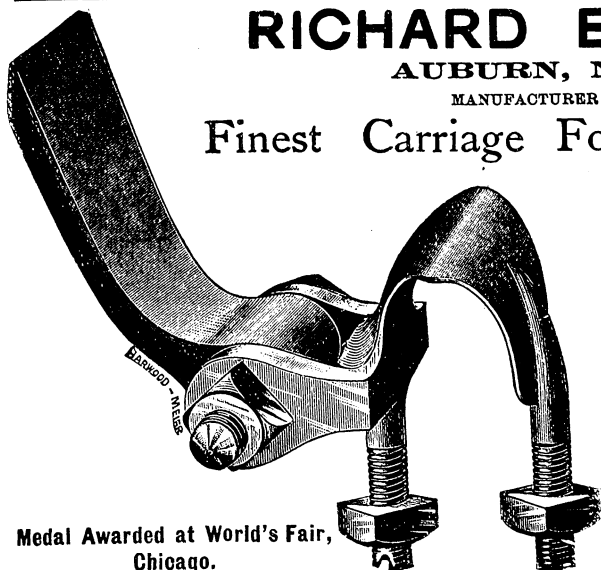
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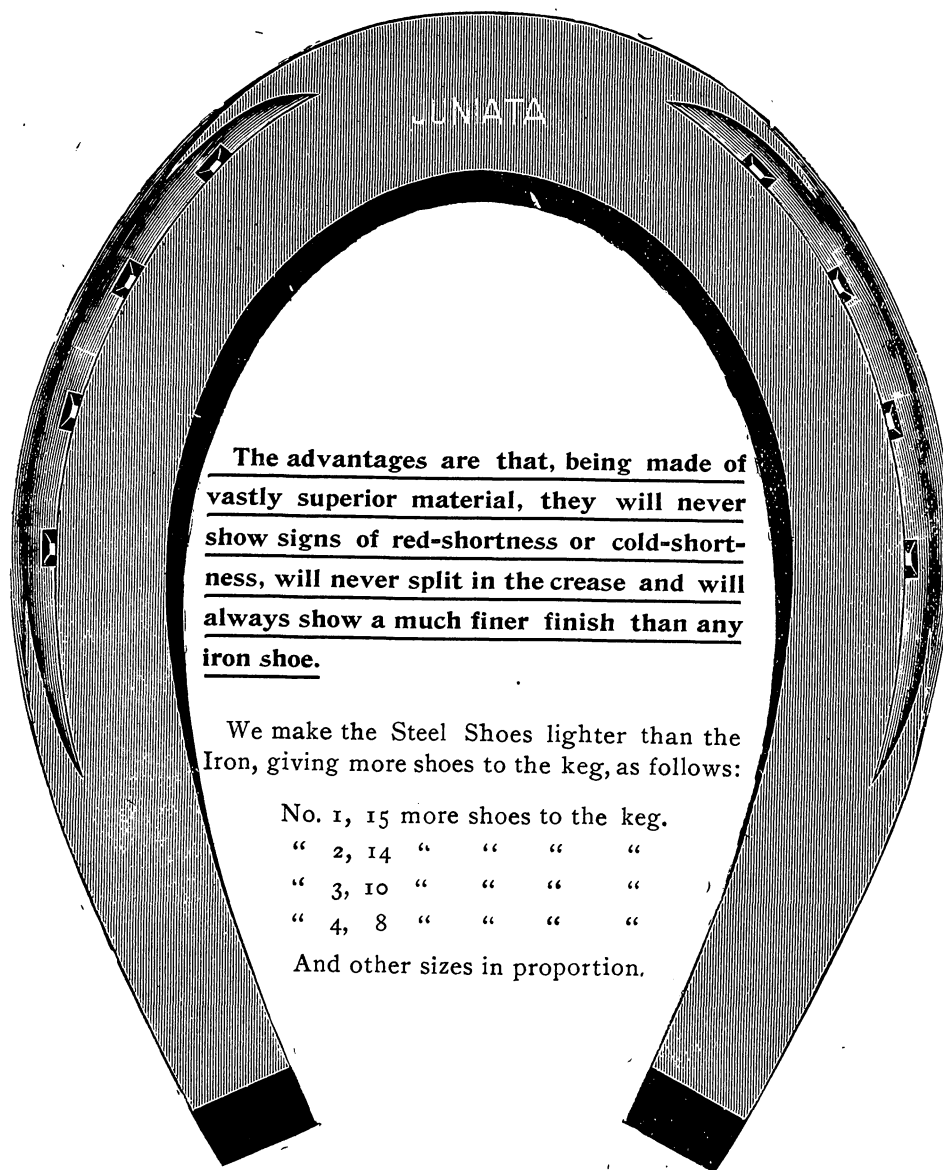
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SHOENBERGER & CO., PITTSBURGH, PA.,

After numerous and costly experiments have succeeded in manufacturing a special quality of soft homogeneous steel, specially adapted to the manufacture of Horse and Mule Shoes, and are now making from this steel "Extra Swaged," and Government Pattern Horse and Mule Shoes. They give the best of satisfaction everywhere and we furnish them to the trade at the same prices as the regular iron shoe sold by ourselves and our competitors. We are at present making our Roadster Pattern Horse Shoes out of Iron, but we will make them of Steel also within a short time.



The advantages are that, being made of vastly superior material, they will never show signs of red-shortness or cold-shortness, will never split in the crease and will always show a much finer finish than any iron shoe.

We make the Steel Shoes lighter than the Iron, giving more shoes to the keg, as follows:

No. 1, 15 more shoes to the keg.

" 2, 14 " " " "

" 3, 10 " " " "

" 4, 8 " " " "

And other sizes in proportion.

No. 2 EXTRA SWAGED FRONT.

We also beg to say that we have introduced improved machinery into our new factory and have doubled our capacity, and are now prepared to furnish the best shoe, either iron or steel, ever offered to the trade.

We would also call your attention to our Improved Steel Toe Calk, equal to any in the market. To secure the best wearing qualities use sand or borax in welding on a calk and cool off at a dark red, or still better, cool off without plunging in water. We make sizes numbers 1, 2, 3, 4, 5 and 6, packed in 25-pound boxes.

Write to us for information and prices, or apply to jobbers and dealers, who sell them everywhere.

SHOENBERGER & CO.,

JUNIATA IRON AND STEEL WORKS, - - - PITTSBURGH, PA.

SCRANTON FORGING CO.,

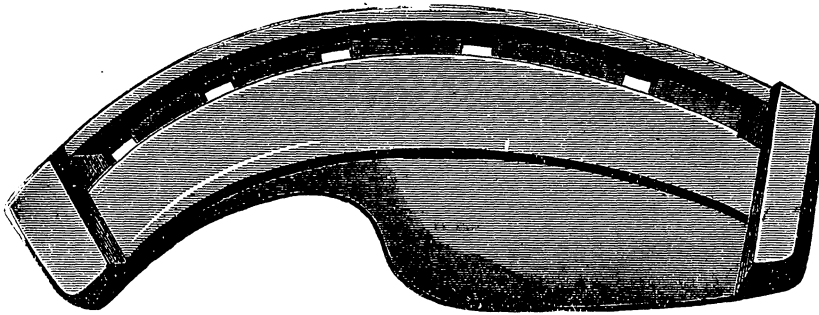
SCRANTON, PA

CARRIAGE HARDWARE AND SPECIAL DROP FORGINGS.

FORGED

OX

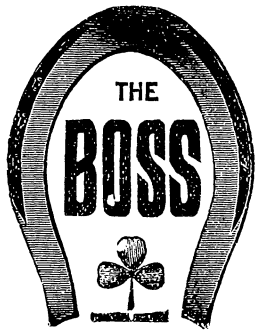
SHOES.



Made under Deebie's Patent, Aug. 9, 1887.

Our 1891 pattern is a modification of the style we have made for the past four years, giving additional strength to the web.

IT IS JUST RIGHT.



HORSE AND MULE SHOES.

Superior Quality, Shape and Finish.

BRYDEN HORSE SHOE CO.,
CATASAUQUA, PA.

RHODE ISLAND PERKINS HORSE SHOE CO.,
MANUFACTURERS OF

Horse and Mule Shoes of the Perkins Pattern.

SPECIALTIES:—X L Steel Shoes, Toe Weight Shoes and Goodenough Shoes.

Works at Valley Falls, R. I.

Office, 31 Exchange Place, Providence, R. I.

F. W. CARPENTER, Pres.,

C. H. PERKINS, Gen. Manager,

R. W. COMSTOCK, Sec'y,

CHARLES R. STARK, Treas.

J. C. McCARTY & CO., Agents - 97 Chambers Street, New York.

THE NEW DIAMOND STATE HORSE AND MULE SHOES.

JUST TRY THEM and YOU will say they excel all others.

MANUFACTURED BY

DIAMOND STATE IRON CO.
WILMINGTON, DELAWARE.

Other "high grade" specialties in Rivets, Spikes, Splice Bars, Track and Machine Bolts, Blaud Nuts, Stay Bolt Iron, Horse Shoe Iron, Bar Iron, &c.

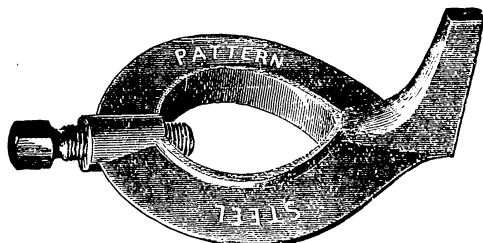
PHILADELPHIA OFFICE,
206 So. Fourth St.

{Correspondence invited}

NEW YORK OFFICE,
11 Pine St.

LE COUNT'S LIGHT STEEL DOG,

WITH STEEL SCREWS.



U. S. Standard.			Points Hardened.		
No.	Inch.	Price.	No.	Inch.	Price.
1.....	3/8	\$0 35	7.....	1 3/4	\$1 00
2.....	1/2	35	8.....	2	1 10
3.....	3/4	60	9.....	2 1/2	1 40
4.....	1	60	10.....	3	1 50
5.....	1 1/4	75	11.....	3 1/2	1 70
6.....	1 1/2	85	12.....	4	1 00

Small set of 8, \$5.50. Full set of 12, \$12

SEND FOR CATALOGUE OF FULL LINE OF MACHINISTS' TOOLS.

C. W. LE COUNT, MANUFACTURER, SO. NORWALK, CONN., U. S. A
These goods are for sale by CHAS. CHURCHILL & CO., Ltd., 21 Cross St., London, England.

BURDEN'S

HORSE SHOES.

"Burden Best"

Iron

Boiler Rivets.

The Burden Iron Co.

TROY, N. Y.

PHOENIX HORSE SHOES.

PHOENIX HORSE SHOE CO.,

Poughkeepsie, N. Y.

NEW YORK OFFICE, No. 66 Reade St.

Standard Horse Shoe Co.,
Manufacturers of
HORSE AND MULE SHOES.

LEEDS, ROBINSON & CO., General Agents,

4 Liberty Square, Boston, Mass.



— HIGHEST AWARD —

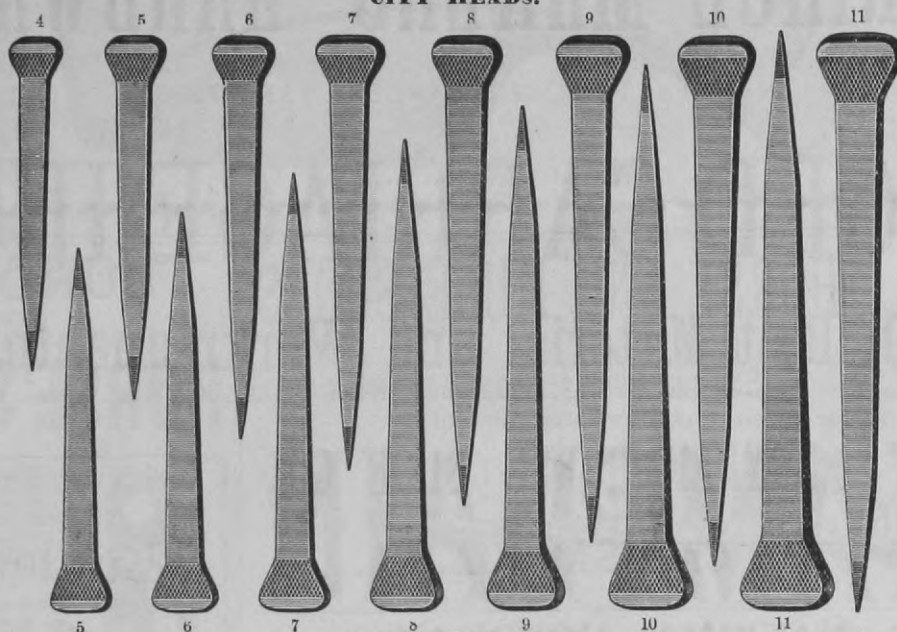
AT

WORLD'S COLUMBIAN EXHIBITION.

CAPEWELL HORSE NAILS.

"Tensile strength one-half greater than that of any other nail made."

CITY HEADS.



REGULAR HEADS.

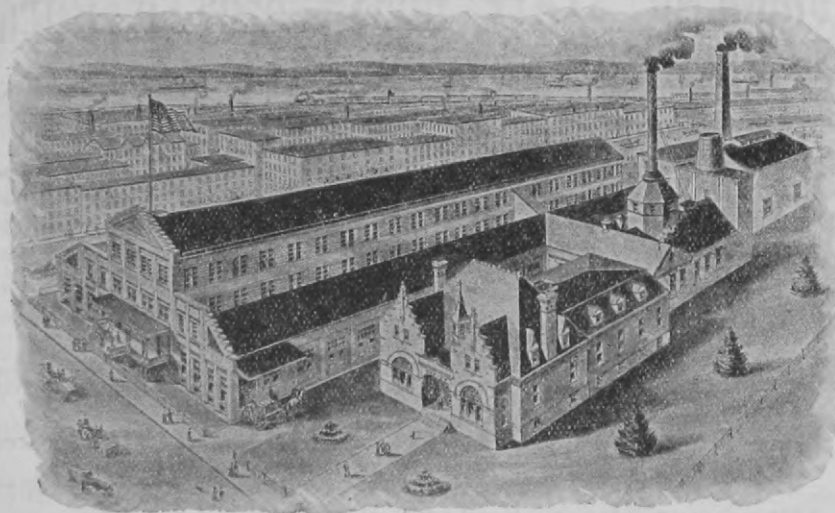
The Capewell Patent Corrugated Horse Nail.

Needs no
Clinching.



Made in
All Sizes.

"The Coming Nail to be Used."—JOHN KIERNAN,
Chief Farrier and Instructor in Horseshoeing, U. S. Army.



The Capewell Horse Nail Co.,
HARTFORD, CONN.



H. D. SMITH & CO.,

Plantsville, Conn.,

MANUFACTURERS OF THE BEST QUALITY

CARRIAGE MAKERS' HARDWARE,

MANUFACTURE THE LARGEST VARIETY OF

FORGED CARRIAGE IRONS

Of Best Material and Workmanship.

Send for Price and Illustrated List of

CHAMPLAIN

Manufactured by the NATIONAL HORSE NAIL CO.,
VERGENNES, VERMONT.

All Sizes. All Patterns. All Warranted. Sold Everywhere.

J. C. McCARTY & CO., Agents. New York.



Elegant Iron.
Beautiful Shape.

HORSE SHOES,
Light, Medium and Heavy.
MULE SHOES,
Light, Medium and Heavy.

Illustrated booklet and prices to all
parts of the world on application.

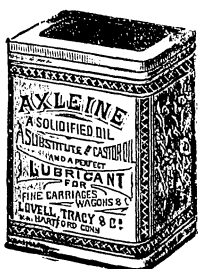
OLD DOMINION IRON AND NAIL WORKS CO.,

ARTHUR B. CLARKE, President.

Chicago Office, 45 La Salle St.

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AXLEINE



is a fine quality of Axle Grease put up in square tin boxes containing one pound; beautifully decorated in assorted colors; designed especially for the Hardware Trade. Showy and attractive shelf goods.

Send for sample and prices.

LOVELL, TRACY & CO. 71 Asylum St. Hartford, Conn.

Crescent
Horse and Mule Shoes,
BAR IRON.

CRESCENT HORSE SHOE
IRON CO.

Max Meadows, Va.

P. F. BURKE, C. F. DEWICK & CO.
Successors to
Manufacturer of
PATENT STEEL
(Blunt and Sharp)
TOE-CALKS.
—ALSO—
BURKE'S IMPROVED
HORSESHOERS'
FOOT VICE.
Send for Circulars.
360 Dorchester Av. Die for Welding
BOSTON, MASS. Sharp Calks.

THE IMPROVED "GEM" POST HOLE AUGER.
Opened for Emptying.

Is the most desirable
Auger ever offered
to the public. The
blades are attached
direct to the steel
handles. The weight
reduced by four
pounds, yet is
stronger. Will work
in any kind of soil.
Sent on trial, if not
satisfactory it may
be returned at our
expense. The shape
of the bits allows the
same to be closed so

tight as to be able to
remove very fine
dirt or sand from
the hole; may be
placed in boring position,
or in closed,
to remove dirt from
hole, or opened up
in emptying, at will
of operator, without
the use of any
spring or removing
of hands from
handles. Nothing
equal to it. Made in
all sizes from five



The New Britain Hardware Mfg. Co.

New Britain, Conn., U. S. A.

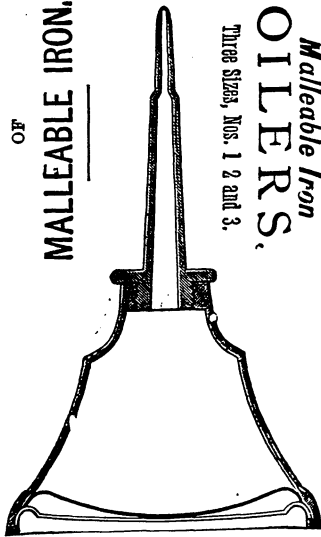
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Special Machine Screws, Studs, Bolts, &c.
BICYCLE PARTS,
SPECIAL HARDWARE.

Pattern Makers' Dowels and Emery Wheel Dressers
Electro, Brass and Nickel Plating.

BUFFALO SCALE CO., Buffalo, N. Y. SCALES OF ALL KINDS.

Patented Articles
OF
MALLEABLE IRON.

New Improved
PATENT
Malleable Iron
OILERS.
Three Sizes, Nos. 1 2 and 3.



Hammer's Adjustable Clamps.
Mall. Iron Hand Lamps.
M. I. Hanging Lamps.

New Pattern Heavy Screw Clamps.
Strongest in the market.

For Sale by all the Principal Hardware Dealers.
SEND FOR PRICE LIST.

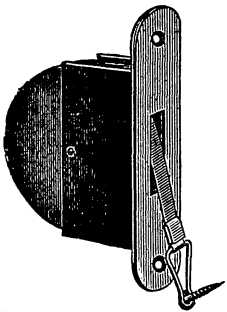
MALLEABLE IRON CASTINGS
of superior quality, and Hardware Specialties
in Malleable Iron, made to order.

HAMMER & CO., Branford, Conn.

Mechanically Perfect.

Endorsed by the Architect

as the most durable device ever invented
for counter balancing the weight of sash.



**NO POCKETS OR
BOXES REQUIRED.**

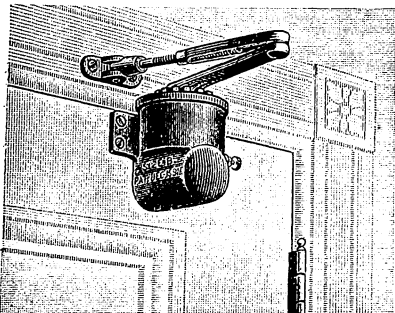
Can be used in
old as well as new
houses. Warranted
15 years.

Write for Illustrated
Price-List.

PULLMAN SASH BALANCE CO., Rochester, N. Y.

New York Office, 142 Chambers St.

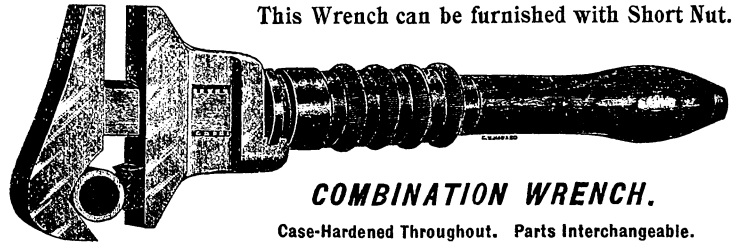
Chicago Office, 235 Lake St.



Bardsley's Liquid Door Check and Spring

Perfect in action, durable, neat in appearance, low
in price and fully warranted. Responsible Agents
wanted in the principal cities.

J. BARDSLEY, 149 & 151 Baxter St., New York.



This Wrench can be furnished with Short Nut.

COMBINATION WRENCH.

Case-Hardened Throughout. Parts Interchangeable.

This wrench not only combines the superior qualities of a Gas Pipe Wrench but also all the
requisite combinations of a regular Nut Wrench, thus making a combination which has no equal.
For Circulars and Price-List, address

BEMIS & CALL HARDWARE & TOOL CO., Springfield, Mass., U. S. A.



TRIMO PIPE WRENCH,

Forged Steel.

All parts interchangeable.

Grips firmly without loss of motion. Releases readily. Never locks. Causes no
trouble in close quarters. Does not crush the pipe.

**TRIMO
CHAIN
PIPE
WRENCH.**



**TRIMO
BASIN WRENCH.**

**TRIMONT MFG. CO., ROXBURY
MASS.**

DROP-FORGED STEEL ENGINEERS' WRENCHES,

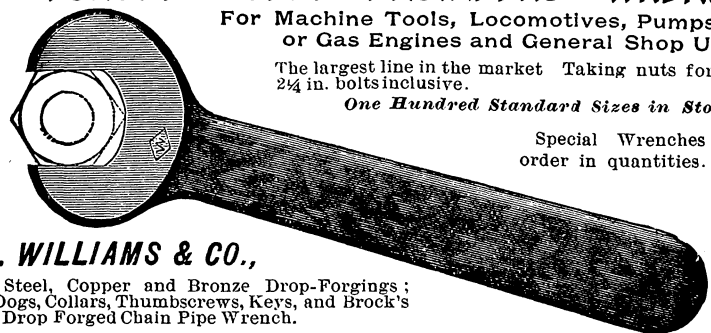
For Machine Tools, Locomotives, Pumps, Steam
or Gas Engines and General Shop Use.

The largest line in the market Taking nuts for 3-16 in. to
2 1/4 in. bolts inclusive.

One Hundred Standard Sizes in Stock.

Special Wrenches made to
order in quantities.

TRACK WRENCHES.
BOX WRENCHES.



J. H. WILLIAMS & CO.,

Iron, Steel, Copper and Bronze Drop-Forgings;
Lathe Dogs, Collars, Thumbscrews, Keys, and Brock's
Patent Drop Forged Chain Pipe Wrench.

9 to 15 RICHARDS ST., BROOKLYN, N. Y.

BILLINGS PATENT DOUBLE-ACTING RATCHET DRILL

FOR MORSE TAPER SHANK DRILLS.

PACKER RATCHET DRILLS

"BOILER RATCHET"

"AUGER RATCHET"

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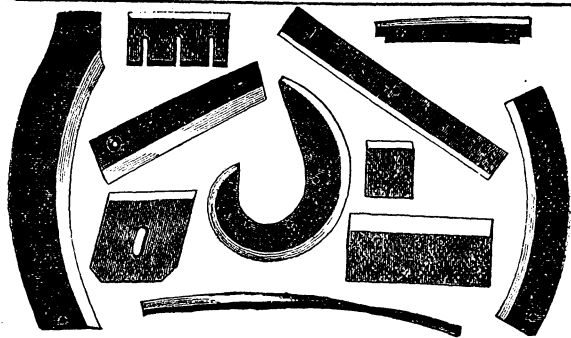
**THE BILLINGS & SPENCER CO., Hartford, Conn.
U. S. A.**

MONCE'S NOVELTY GLASS CUTTERS. — INTERCHANGEABLE LOCK STENCILS



No. 1 Cutter. All glass men are familiar with this tool.

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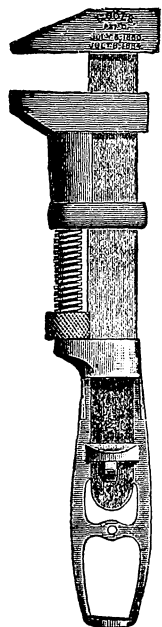
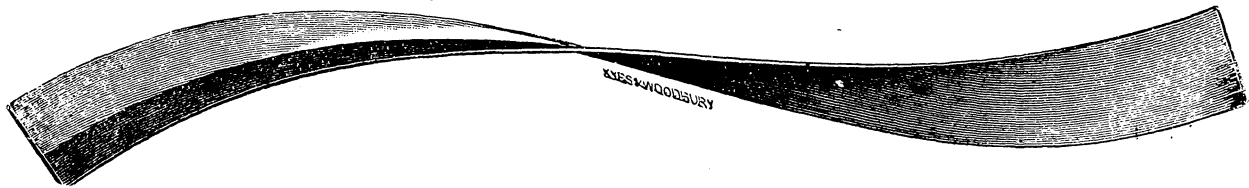
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WORCESTER, MASS.

Manufacturers of MACHINE KNIVES.

Shear Blades and Strips, Moulding Cutter Plate, Die Stock for Leather, Cloth and Paper Cutting Dies. Lawn Mower and Hay Cutter Knives of every description.

End view of Plated Stock for Dies, Lawn Mower Knives, Blades Etc., showing how the Steel is laid.

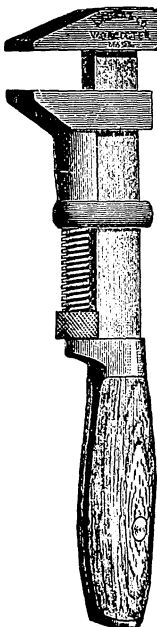
**L. COES'**

Genuine Improved
KNIFE HANDLE
PATENT

Screw Wrenches

MANUFACTURED BY

COES WRENCH CO.,
WORCESTER, MASS.



Established in
1839.

Registered
March 31, 1874.

Patented July
6, 1880.

Patented July
8, 1884.

Sectional View Illustrates our New Knife Handle, showing Malleable Iron Frame and Shank of Bar keyed into position.

17 Straight Bar, Extra Long Nut for Screw in Jaw. **21**

The **BEST MADE** and **STRONGEST WRENCH** in the MARKET.

J. C. McCARTY & CO.,
JOHN H. GRAHAM & CO. } New York Agents.

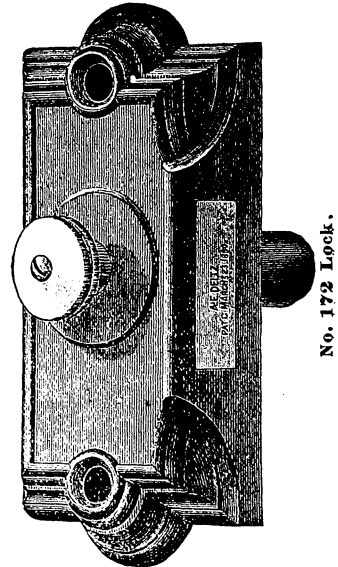
IMPROVED MINE LAMP
FOR ANTHRACITE AND BITUMINOUS MINING

6 DIFFERENT STYLES OF SPOUTS.

SAMPLE 15¢.

SEAMLESS BRASS COLLAR
BRASS HINGE
Lid Solid
No SOLDERING

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C. McCARTY & CO., Agents, 97 Chambers and 81 Reade Sts., New York.
Factory, **BROOKLYN, E. D., N. Y.**



—OUR—

PURE ALUMINUM COOKING UTENSILS

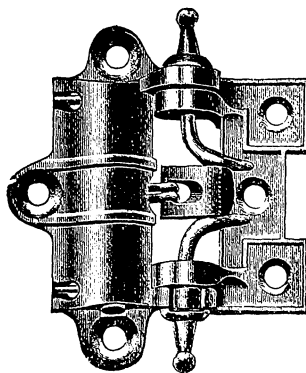
Meeting with such universal appreciation, we think it to our interest to appoint **ONE** responsible firm of Hardware Merchants in **EACH** town and city as our sole agents.

ILLINOIS PURE ALUMINUM CO.,
LEMONT, ILLINOIS.

Manufacturers of Sheets, Medals, Utensils.

NEW IDEA SPRING HINGE

Holds the door strongest when closed.



Resistance gradually decreases in opening

and increases in closing the door.

A covered (patented) hold-back Spring Hinge. Full particulars, free Sample and Prices by mentioning this paper.

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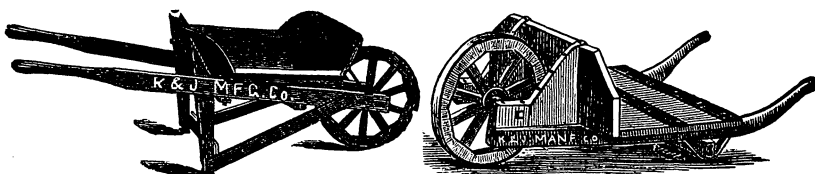
McKean and Meadow Sts.,

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THE ONLY GENUINE SOLID CASE.
ANTI SPLITTING.
CUTS AWAY LESS FRAME.
IS HELD MORE SECURELY.
DOES NOT REQUIRE SCREWS.
HAS NO FACE PLATE.
NO CHISELING REQUIRED.
NO SPECIAL TOOLS REQUIRED.
NO COUNTERSINKING FOR FACE PLATES. MILLIONS SOLD.
THE BEST, TOO GOOD FOR YOU.
IT IS THE **EMPIRE SASH PULLEY**
WITH $\frac{1}{2}$ " STEEL AXLES.

EMPIRE PORTABLE FORGE CO.
LANSINGBURGH, N. Y.

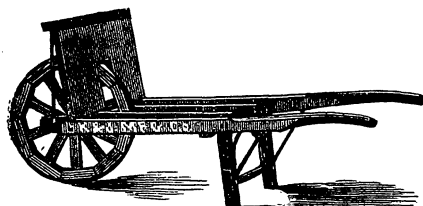
Wheelbarrows,
Steel,
Tubular,
Mining and
Foundry,



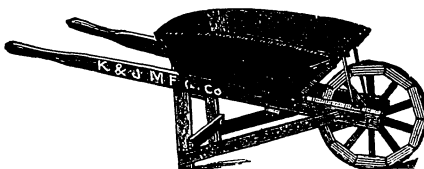
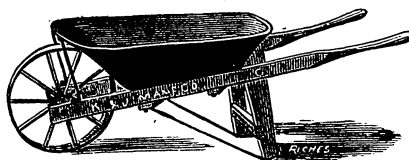
Better in
Quality,
Cheaper in
Price

THE

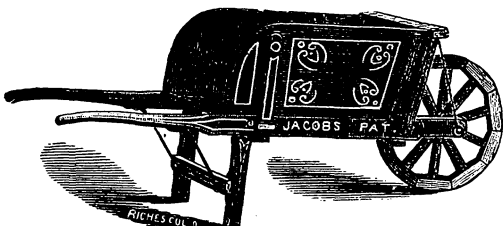
K & J



Drag and
Wheel
Scrapers,
Railroad



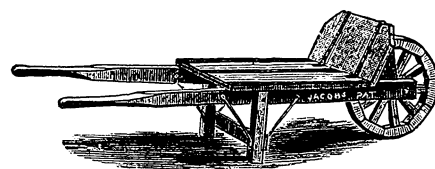
than any
other
makes.
A larger



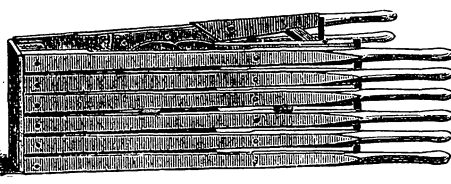
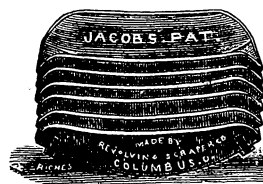
M'F'G CO.,

Columbus, Ohio,

U. S. A.



and Grading
Plows,
Wrought Steel
Sinks.



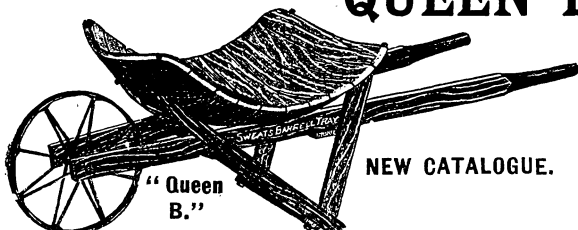
Variety and
the
Largest
Stocks.

QUEEN LIL BOTHERS STATESMEN,

—BUT—

“QUEEN B” suits
TRADESMEN.

SWEATT MFG. CO., - MINNEAPOLIS, MINN.



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Manufacturers of

BENCH VISES.

Price Lists sent on application.

Electric Toy Making, Dynamo Building and Electric-Motor Construction. By T. O'CONOR SLOANE, A.M., E.M., Ph.D. This work treats of the making at home of electrical toys, electrical apparatus, motors, dynamos, and instruments in general and is designed to bring within the reach of young and old the manufacture of genuine and useful electrical appliances. The work is specially designed for amateurs and young folks. Very fully illustrated..... \$1.00

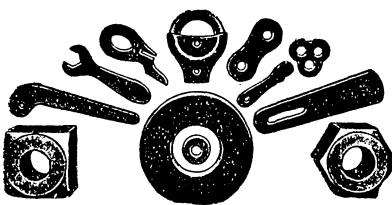
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STEEL BARROWS.

LANSING WHEELBARROW CO.

LANSING, MICH.



J FRED WILSON, Worcester, Mass.

Metal Punching AND Die Work.

Cold Punched Nuts and Washers for all Purposes.

SEND FOR PRICES ON

SPECIALTIES IN LINE OF PRESS WORK.

ALL STEEL

WHEELBARROWS & SCRAPERS

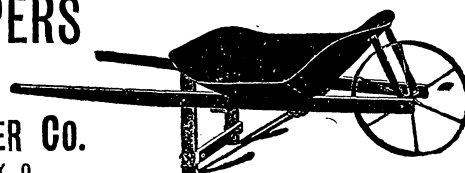
MANUFACTURED BY

AMERICAN STEEL SCRAPER CO.

1104 Court Street, SIDNEY, O.

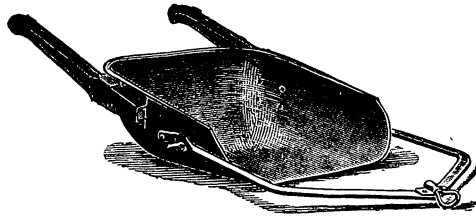


Write
for
Catalogue



An Income Tax

May or may not suit the people at large; but what we wanted to say was this: that if you want Wheelbarrows or Scrapers that there is no doubt about their suitable qualities, we are the people you want to address your orders to.

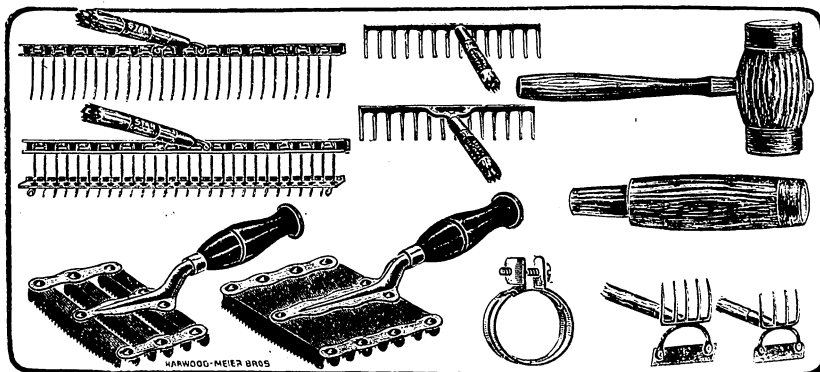
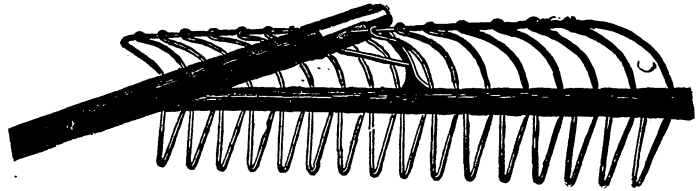


Sidney Steel Scraper Co., 924 Poplar Street,
SIDNEY, O.

LAWN RAKES. The "GEM" AND "DAVIS."

Both good and each the best. If you have not stocked up, better do so at once. Our prices are low.

SCHAEFFER & CO., Dayton, O.



SYRACUSE SPECIALTY MFG. CO.,
SYRACUSE, N. Y.

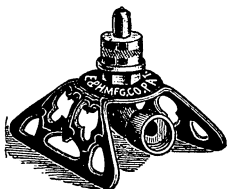
MANUFACTURERS OF

Curry Combs, Lawn Rakes, Hose Bands,
Rawhide Ferruled Mallets and Chisel
Handles, Malleable Rakes
and Weeders, &c.

SURPLESS, DUNN & ALDER,

97 Chambers St., New York,

—DIRECT REPRESENTATIVES.—

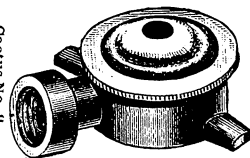


Japanese No. 12,
Adjust.

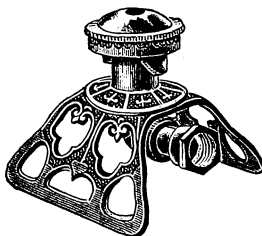
**LAWN
SPRINKLERS.**

We manufacture the BEST and
CHEAPEST Lawn Sprinklers in
the World.

Cactus No. 8.



The only Sprinklers which have no revolving parts to leak or wear out.
The only Sprinklers free from small holes, and which cannot become clogged with gritty substances.
The only Sprinklers which are adjustable and will give a spray as fine as the mist of Niagara, or as heavy as the area of the supply pipe.
The best Sprinklers for high pressures, and the only sprinklers which will give satisfaction with low pressures.
We also manufacture the old style revolving sprinklers, but for our own use would not have them



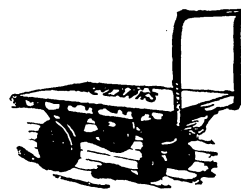
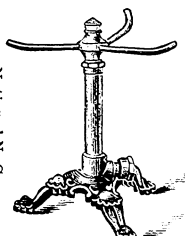
Cactus No. 5.

Ette & Henger Mfg. Co.

ST. LOUIS, MO.

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National N. G.



TRUCKS of all
kinds Mounted
on rubber or
iron wheels. Trucks
made to order.
Write for prices.
Catalogues free.

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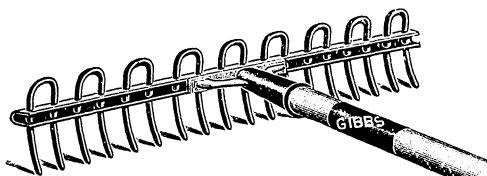
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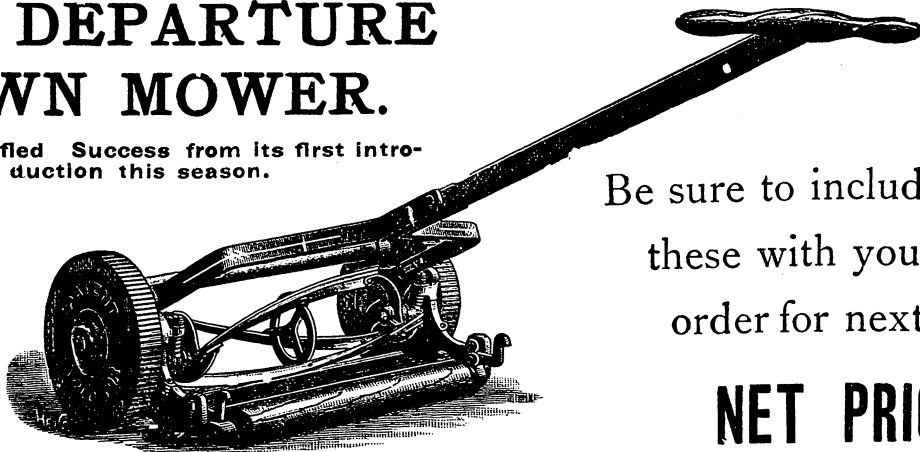


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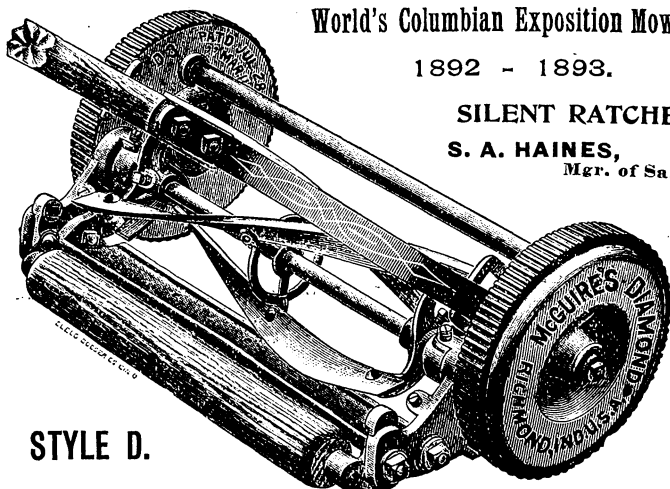
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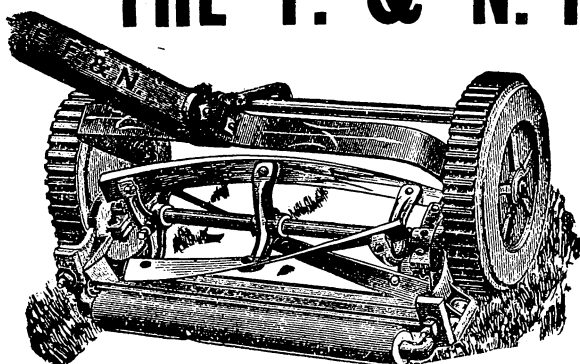
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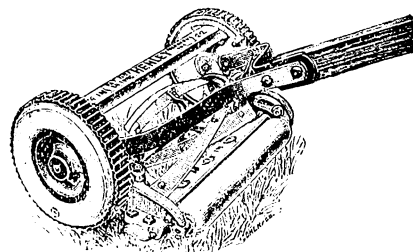
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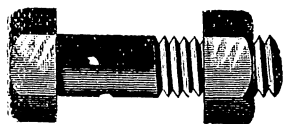
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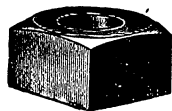
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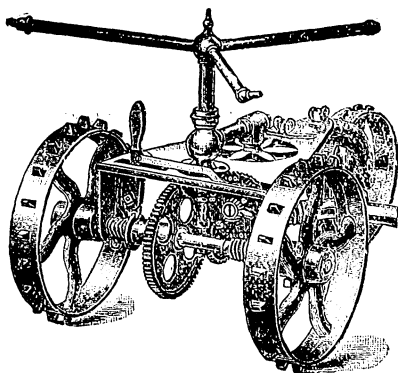
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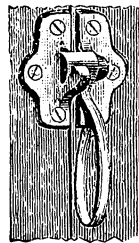
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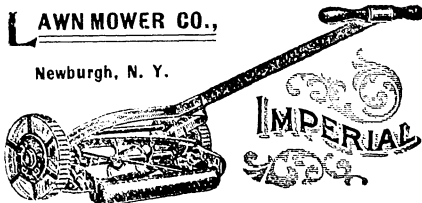
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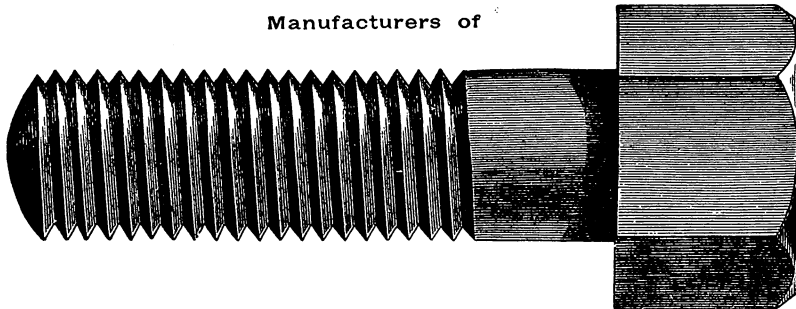
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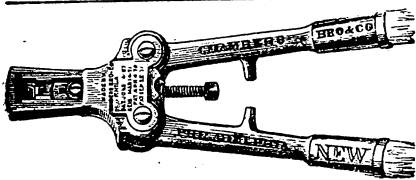


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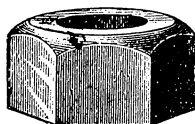
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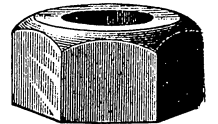
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Ridgway, Craig & Sons, Coatesville, Pa.
Sellers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Colliau, Victor, Detroit, Mich.
Detroit Fdry. Equipment Co., Detroit, Mich.

Curling Irons.
Nicol & Co., Chicago, Ill.

Cutlery Cases.
Torrey, J. R. & Co., Worcester, Mass.

Cutlery, Importers of.
Field, Alfred & Co., 93 Chambers St., New York.
Gurney, Fred B., 116 Chambers St., N. Y.
Sickles, Sweet & Lyon, 35 Barclay, N. Y.

Cutlery, Manufacturers of.
Hingham, W. Co., Cleveland, Ohio.
Dane, Stoddard & Kendall, Boston, Mass.
Electric Cutlery Co., 113 Chambers, N. Y.
Goodell Co., Antrim, N. H.
Northampton Cutlery Co., Northampton, Mass.
Wilson, John, Sheffield, England.

Dies.
Wilson, J. Fred, Worcester, Mass.

Die Forgings and Castings.
Bliss, E. W. Co., Brooklyn, N. Y.

Door Checks and Springs.
Bardsley, J., 149 & 151 Baxter St., N. Y.
Corbin, P. & F., New Britain, Conn.

Door Latches.
Graham, Jno. H. & Co., 113 Chambers St., N. Y.

Drain Cleaners.
Buckeye Mfg. Co., Union City, Ind.

Drawing Instruments.
Keuffel & Esser Co., 127 Fulton St., N. Y.

Drilling Machines.
Bickford Drill & Tool Co., Cinn., Ohio.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co., Lancaster, Pa.
Colburn, A. M., New Haven, Conn.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Halsey, Jas. T., Philadelphia, Pa.
Hamilton Mch. Tool Co., Hamilton, O.
Norton & Jones Machine Tool Works, Plainville, Conn.
Penna. Diamond Drill & Mfg. Co., Birdsboro, Pa.
Quint, A. D., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila., Pa.
Sibley & Ware, So. Bend, Ind.
Sigourney Tool Co., Hartford, Conn.
Silver Mfg. Co., Salem, O.

Drop Forgings.
Beacon Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn.
Boone, W. O. Mfg. Co., Boonton, N. J.
Eccles, Richard, Auburn, N. Y.
Merrill Bros., Brooklyn, N. Y.
Miner & Peck Mfg. Co., New Haven, Conn.
Phila. Drop Forge Co., Philadelphia, Pa.
Scranton Forging Co., Scranton, Pa.
Spicers, J. C. & Co., Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
Wyman & Gordon, Worcester, Mass.

Drop Presses.
Bliss, E. W. Co., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Miner & Peck Mfg. Co., New Haven, Conn.
Stiles & Parker Press Co., Brooklyn, N. Y.

- Vulcan Iron Works, Chicago, Ill.**
Waterbury Foundry and Machine Co., Waterbury, Conn.
- Dumb Waiters.**
Storm Mfg. Co., Newark, N. J.
- Dust Beaters.**
Peabody & Parks, Troy, N. Y.
- Dynamite.**
New York Powder Co., 62 Liberty St., N. Y.
- Dynos.**
O. & C. Electric Co., 402 and 404 Greenwich St., N. Y.
- Edge Tools. Makers of.**
Suck Bros., Millbury, Mass.
Buffalo Edge Tool Wks., Ridgway, Pa.
Plumb, Fayette R., Philadelphia, Pa.
White, L. & I. J. Co., Buffalo, N. Y.
- Edging Shears.**
Dille & McGuire Mfg. Co., Richmond, Ind.
- Egg Beaters.**
North Bros. Mfg. Co., Philadelphia.
- Electric Bells and Supplies.**
Ostrander, W. R. & Co., 204 Fulton St., New York
Wollensak, J. F., Chicago, Ill.
- Electric Dynamo Machines.**
Colburn Electric Mfg. Co., Fitchburg, Mass.
- Elevators. Makers of.**
Link-Belt Engineering Co., Phila., Pa.
Morse, Williams & Co., Phila., Pa.
- Emery and Emery Wheels.**
Bell, Geo. E., 36 John St., N. Y.
Grant Corundum Wheel Mfg. Co., Worcester, Mass.
N. Y. Belting & Packing Co., Ltd., 7 Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester, Mass.
Sterling Emery Wheel Co., 174 Fulton St., New York
Sturtevant Mill Co., Boston, Mass.
- Emery Wheel Dressers.**
Bay State Stamping Co., Worcester, Mass.
- Enamels.**
Nubian Iron Enamel Co., Cragin, Ill.
- Engineers and Contractors.**
Aiken Henry, Pittsburgh, Pa.
Artificial Gas Engineering Co., Pittsburgh, Pa.
Herrick, J. A., 284 Pearl St., N. Y.
Kennedy, Julian, Pittsburgh, Pa.
Langhin, Alex. & Co., Pittsburgh, Pa.
Lean, D. B. & Co., Pittsburgh, Pa.
McClure, Amos & Co., Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
Smythe, S. R. Co., Incorporated Pittsburgh, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.
- Engines. Gas.**
Otto Gas Engine Works, Phila., Pa.
Rollason Gas Engine, Havemayer Bldg., N. Y.
- Engines. Steam. Makers of.**
Bass Foundry & Machine Works, Ft. Wayne, Ind.
Buckeye Engine Co., Salem, O.
Coulter & McKenzie Mch. Co., Bridgeport, Conn.
Erie Engine Works, Erie, Pa.
Norwalk Iron Works Co., So. Norwalk, Conn.
Penna. Diamond Drill & Mfg. Co., Birdsboro, Pa.
Phila. Engineering Works, Phila., Pa.
Phoenix Iron Wks. Co., Meadville, Pa.
Southward Foundry and Machine Co., Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.
- Exhaust Tumblers.**
Sweetser, W. A., Brockton, Mass.
- Expansion Belts.**
Boone, W. C. Mfg. Co., Boonton, N. J.
Church, Isaac, Toledo, O.
Steward & Romaine Mfg. Co., Phila., Pa.
- Faucets, Self-Measuring.**
Lane Bros., Poughkeepsie, N. Y.
- Faucets. Wooden. Makers of.**
John Sommer's Son, Newark, N. J.
- Feed-Water Heaters.**
Davis, I. B. & Son, Hartford, Conn.
Goubert Mfg. Co., 32 Cortlandt St., N. Y.
Harrison Safety Boiler Wks., Phila., Pa.
National Pipe Bending Co., New Haven, Conn.
Webster, Warren & Co., Camden, N. J.
Whitlock Coil Pipe Co., Elmwood, Conn.
- Fencing. Iron and Wire.**
Sarnum, E. T., Detroit, Mich.
Champion Wire Cloth Co., Kenton, O.
Clinton Wire Cloth Co., Clinton, Mass.
Gilbert & Bennett Mfg. Co., 42 Cliff St., Elmer Mfg. Co., Newburgh, N. Y.
Mast, Foss & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.
Bellance Wire & Iron Wks., Milwaukee
- Files. Importers of.**
Moss, F. W., 80 John, N. Y.
- Files and Rasps. Manufacturers of.**
Arcade File Works, Anderson, Ind.
Sanker & White, Troy, N. Y.
- Barnett, G. & H., 41 & 43 Richmond**
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence, R. I.
- Fire Brick. Makers of.**
Borgner, Cyrus, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston, St. McLeod & Henry Co., Troy, N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Ostrander Fire Brick Co., Troy, N. Y.
Valentine, M. D. & Bro., Woodbridge.
- Fire Sets.**
Troy Nickel Works, Troy, N. Y.
- Fishing Tackle.**
Dane, Stoddard & Kendall, Boston, Mass.
- Flint and Emery Paper.**
Baeder, Adamson & Co., Phila., Pa.
- Flue Cleaners.**
Mackey, Jas. T., St. Louis, Mo.
- Fodder Cutters.**
Silver Mfg. Co., Salem, O.
- Forges. Portable. &c.**
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Empire Portable Forge Co., Lansingburg, N. Y.
Sturtevant, B. F. Co., Boston, Mass.
- Forgings, Iron and Steel.**
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Steel-Cambria Iron Co., Johnstown, Pa.
Eastern Forge Co., Boston, Mass.
Frankford Steel Co., Phila., Pa.
Morant Forge Co., Scranton, Pa.
U. S. Projectile Co., Brooklyn, N. Y.
- Foundry Facings.**
S. Obermayer Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cin., O.
- Foundry Riddles.**
Estey, W. S., 65 Fulton, N. Y.
- Foundry Supplies.**
Colliau, Victor, Detroit, Mich.
Diamond Clamp & Flask Co., Richmond, Ind.
S. Obermayer Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cin., O.
- Friction Clutches.**
Keystone Clutch & Mch. Wks., Phila., Pa.
Moore & White Co., Philadelphia, Pa.
- Friction Cone.**
Evans Friction Cone Co., Boston, Mass.
- Gas Producers.**
Wood, R. D. & Co., Philadelphia, Pa.
- Gas & Steam Fitters' Supplies.**
Pancoast, Henry B. & Co., Phila., Pa.
- Gauge, Rolling Mill.**
Haines Gauge Co., Philadelphia, Pa.
- Gear Cutters.**
D. E. Whiton Mach. Co., New London, Conn.
- Gears.**
Boston Gear Works, Boston, Mass.
Gleason Tool Co., Rochester, N. Y.
Hoole, Robt. & Son Co., Baltimore, Md.
U. S. Projectile Co., Brooklyn, N. Y.
- Glass Cutters.**
Monroe, S. G., Bristol, Conn.
- Glass Tubes.**
Ashcroft Mfg. Co., 111 Liberty St., N. Y.
- Glue.**
Baeder, Adamson & Co., Phila., Pa.
Russell Cement Co., Gloucester, Mass.
- Grass Catchers.**
Supplee Hardware Co., Phila., Pa.
- Grinding and Polishing Machines.**
Norton Emery Wheel Co., Worcester, Mass.
- Grindstone Dressing Machinery**
Blake & Johnson, Waterbury, Conn.
- Grindstones.**
Cleveland Stone Co., Cleveland, O.
- Gunpowder. Makers of.**
Lafin & Rand Powder Co., 29 Murray St., N. Y.
- Hand Carts.**
Lansing Wheelbarrow Co., Lansing, Mich.
- Handles.**
New York Mallet and Handle Wks., 466 E. Houston St., N. Y.
- Hangers. Door.**
Coburn Trolley Track Mfg. Co., Holyoke, Mass.
- Lane Bros., Poughkeepsie, N. Y.**
Victor Mfg. Co., Newburgh, N. Y.
- Hardware Comm'n Merchants.**
Doshier, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers St., N. Y.
Graham, John H. & Co., 111 Chambers St., New York.
Jacobus, W. H., 90 Chambers, N. Y.
- Hardware Manufacturers.**
Hotchkiss, E. S., Bridgeport, Conn.
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 108 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.
- Hardware Mfrs. Agents.**
Binzham, W. Co., Cleveland, O.
Clarke, Thomas, St. John, New Brunswick.
Graham, John H. & Co., 113 Chambers, N. Y.
McCoy, Jos. F. Co., 28 Warren St., N. Y.
Sickles, Sweet & Lyon, 35 Barclay, N. Y.
- Hardware Specialties.**
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co., New Haven, Conn.
Berge Bros., Philadelphia, Pa.
Empire Portable Forge Co., Lansingburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Ette & Henger Mfg. Co., St. Louis, Mo.
Haines & Zimmerman, Phila., Pa.
Johnson, S. C., Racine, Wis.
Knapp & Cowles Mfg. Co., Bridgeport, Conn.
New Britain Hdw. Mfg. Co., New Britain, Conn.
North Bros. Mfg. Co., Philadelphia, Pa.
Peabody & Parks, Troy, N. Y.
Shepard, Sidney & Co., Buffalo, N. Y.
Welland, Chas., 119 Chambers St., N. Y.
Wilson, J. Fred, Worcester, Mass.
- Harness Snaps.**
Covert Mfg. Co., West Troy, N. Y.
Coverts' Saddlery Wks., Farmer, N. Y.
Fitch, W. & E. T., New Haven, Conn.
- Hay Knives.**
Holt, Hiram, Co., E. Wilton, Me.
- Holisting Machines.**
Box, Alfred & Co., 314 Green, Phila.
Brown Holisting & Conveying Mch. Co., Cleveland, Ohio.
Copeland & Bacon, 85 Liberty St., N. Y.
Fulton Iron & Engine Wks., Detroit, Mich.
Hart, George, E. Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 98 Liberty, N. Y.
Maris & Beekley, Philadelphia.
Moore Mfg. & Fdy. Co., Milwaukee, Wis.
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Spiegel, J. C., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.
- Hollow Ware, Aluminum.**
Illinois Pure Aluminum Co., Lemont, Ill.
- Horse and Barbers' Clippers.**
Hotchkiss, E. S., Bridgeport, Conn.
- Horse Nails. Makers of.**
Capwell Horse Nail Co., Hartford, Conn.
National Horse Nail Co., Vergennes, Vt.
Putnam Nail Co., Neponset, Boston, Mass.
- Horse and Mule Shoes. Makers of.**
Bryden Horse Shoe Co., Catsauqua, Pa.
Burden Iron Co., Troy, N. Y.
Crescent Horse Shoe & Iron Co., Max Meadows, Va.
Diamond State Iron Co., Wilmington, Del.
Old Dominion Iron & Nail Works Co., Richmond, Va.
Phoenix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
Shoenberger & Co., Pittsburgh, Pa.
Standard Horse Shoe Co., Boston, Mass.
- Hose.**
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.
- Hydrants, &c.**
McLean, John, 296 & 298 Monroe, N. Y.
- Hydraulic Forging.**
U. S. Projectile Co., Brooklyn, N. Y.
- Hydraulic Jacks.**
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 264 E. 43d, N. Y.
- Ice-Cream Freezers.**
Clement & Dunbar, Phila., Pa.
North Bros. Mfg. Co., Phila., Pa.
Packer, C. W., Philadelphia, Pa.
White Mountain Freezer Co., Nashua, N. H.
- Injectors.**
Eynon-Evans Mfg. Co., Philadelphia, Pa.
Jenkins Bros., New York
- Insurance. Boiler.**
Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
- Iron and Steel, Swedish.**
Lundberg, Gustaf, Boston, Mass.
Milnc, A. & Co., 1 Broadway, N. Y.
- Iron Commission Brokers.**
Corning, Edw. & Co., 99 B'way, N. Y.
Cotton, Barclay W. & Co., Phila.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Hoffman, J. W. & Co., Philadelphia.
Keeley, Jerome & Co., Philadelphia.
Lea, J. Tammill & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Pilling & Crane, Philadelphia, Pa.
Sibell, Geo. H. & Co., Chicago, Ill.
Wister, L. & R. & Co., Phila., Pa.
- Iron Ore.**
Naylor & Co., 45 Wall, N. Y.
Samuel, Frank, Philadelphia, Pa.
- Iron. Merchants.**
Barnes, C. K. & Co., Philadelphia, Pa.
Borden & Lovell, 70 West, N. Y.
Bussanits & Cunliffe, Philadelphia.
Corning Edw. & Co., 99 B'way, N. Y.
Cox, Justice, Jr., Philadelphia.
Cotton, Barclay W. & Co., Phila.
Hoffman, J. W. & Co., Philadelphia.
Leonard, J., 446 West St., N. Y.
Navor & Co., 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm St., N. Y.
Pierson & Co., 29 Broadway, N. Y.
Thomson, W. H. & Co., Phila., Pa.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.
- Iron, Importers.**
Abbott Wheelock & Co., N. Y. and Boston
Lundberg, Gustaf, Boston, Mass.
- Iron, Sheet. Manufacturers of.**
Cambridge Iron & Steel Co., Cambridge, Ohio
W. Dewees Wood Co., Lim., McKeesport, Pa.
- Ironwork. Ornamental.**
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foss & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.
- Keys.**
Wollensak, J. F., Chicago, Ill.
- Ladders, Rolling.**
Coburn Trolley Track Mfg. Co., Holyoke, Mass.
- Ladies.**
Detroit Fdy. Equipment Co., Detroit, Mich.
- Lamp Stoves.**
Glazier Stove Co., Chelsea, Mich.
- Lanterns.**
Buhl Stamping Co., Detroit, Mich.
Steam Gauge & Lantern Co., Syracuse, N. Y.
- Lathes.**
Draper Machine Tool Co., Worcester, Mass.
Johnson, Israel H., Jr., & Co., Philadelphia, Pa.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.
- Lathing, Wire.**
Clinton Wire Cloth Co., Clinton, Mass.
N. J. Wire Cloth Co., Trenton, N. J.
Wright & Condon Wire Cloth Co., Worcester, Mass.
- Laundry Machines.**
Johnson, S. C., Racine, Wis.
- Lawn Mowers.**
Chadborn & Coldwell Mfg. Co., Newburgh, N. Y.
Coldwell Lawn Mower Co., Newburgh, N. Y.
Dille & McGuire Mfg. Co., Richmond, Ind.
Euteropse Mfg. Co., Philadelphia, Pa.
F. & N. Mfg. Co., Richmond, Ind.
Henley, M. C., Richmond, Ind.
Mast, Foss & Co., Springfield, O.
Stearns, E. C. & Co., Syracuse, N. Y.
Supplee Hdw. Co., Phila., Pa.
- Lawn Rakes.**
Gibbs Mfg. Co., Canton, Ohio.
Konler, F. E. & Co., Canton, O.
Schaeffer & Co., Dayton, Ohio.
Syracuse Specialty Mfg. Co., Syracuse, N. Y.
- Lawn Sprinklers.**
Ette & Henger Mfg. Co., St. Louis.
Gibbs Mfg. Co., Canton, Ohio.
McGowan, John H. Co., Cincinnati O.
Portland Lawn Sprinkler Co., Portland, Me.
- Lemon Squeezers.**
Ripley Mfg. Co., Unionville, Conn.
- Letters and Figures, Metallic.**
White, A. A. & Co., Providence, R. I.
- Letters, Paper.**
Tablet & Ticket Co., Chicago, Ill.
- Levels.**
Davis & Cook, Watertown, N. Y.
Richardson, C. F., & Son Athol, Mass.
- Locks & Knobs. Manufacturers of.**
Deitz, A. E., 97 Chambers, N. Y.
Keyless Lock Co., Chicago, Ill.
Reading Hdw. Co., Reading, Pa.
Smith & Egge Mfg. Co., Bridgeport, Conn.
Yale & Towne Mfg. Co., Stamford, Conn.

Machinery.

Am. Tool Works, Cleveland, Ohio.
 Barnes, W. F. & John, Rockford, Ill.
 Bement, Miles & Co., Philadelphia, Pa.
 Bigelow, C. E., 46 Dey, N. Y.
 Bignall & Keeler Mfg. Co., St. Louis.
 Birmingham Iron Foundry, Birmingham, Conn.
 Bliss, E. W. Co., Brooklyn, N. Y.
 Bogert, Jno. L., Flushing, N. Y.
 Briggs, Marvin, 12 Broadway, N. Y.
 Carlin's Sons, Thos., Allegheny, Pa.
 Chin. Milling Mch. Co., Cincinnati, Ohio.
 Clapp, Geo. M., agt., 74 Cortlandt, N. Y.
 Coulter & McKenzie Mch. Co., Bridgeport, Conn.
 Detrick & Harvey Mch. Co., Baltimore, Md.
 Fitchburg Mch. Works, Fitchburg, Mass.
 Garvin Mch. Co., Laight & Canal Sts.
 Gould & Eberhardt, Newark, N. J.
 Hamilton Mch. Tool Co., Hamilton, O.
 Harrington, E. Son & Co., Phila., Pa.
 Henderer, A. L., Wilmington, Del.
 Hender Machine Co., Torrington, Ct.
 Hill, Clarke & Co., Boston, Mass.
 Howard & Morse, 45 Fulton St., N. Y.
 Johnson, Israel H., Jr., & Co., Phila.
 Jones & Lamson Mch. Co., Springfield, Vt.
 Lowgrove & Co., Philadelphia, Pa.
 McCabe, J. J., 68 Cortlandt, N. Y.
 Machinists Supply Co., Rochester, N. Y.
 Manville, E. J. Mch. Co., Waterbury, Conn.
 Newark Mch. Tool Works, Newark, N. J.
 New Haven Mfg. Co., New Haven, Conn.
 Niles Tool Wks., 138 Liberty St., N. Y.
 Pittsburgh Mfg. Co., Pittsburgh, Pa.
 Place, Geo., 120 Broadway, N. Y.
 Poole, Robt. & Son Co., Baltimore, Md.
 Powell Planer Co., Worcester, Mass.
 Pratt & Whitney Co., Hartford, Conn.
 Prentiss Tool & Supply Co., N. Y.
 Scranton Supply & Mchry. Co., Scranton, Pa.
 Sellers, Wm. & Co., Phila.
 Seyfert's Sons L. F., Philadelphia, Pa.
 Steptoe, J. & Co., Cincinnati, O.
 Stow Flexible Shaft Co., Ltd., Phila.
 Toomey, Frank, Philadelphia, Pa.
 Wetherill, Robert & Co., Chester, Pa.
 Wickes Bros., Saginaw, Mich.
 Wilson, W. A., Rochester, N. Y.

Machinery for Hardware Manufacture.

Adt, Jno. & Son, New Haven, Conn.
Machine Knives.
 Lorinc Coes & Co., Worcester, Mass.
Machine Screws.
 New Britain Hdw. Mfg. Co., New Britain, Conn.

Machine Tools.—See machinery.

Machine Work.
 Papping, J., 58th St., & 11th Ave., N. Y. City.

Machinists' Scales.
 Coffin & Leighton, Syracuse, N. Y.
 Starratt, L. S., Athol, Mass.
 Valentine Tool Co., Hartford, Conn.

Machinists' Tools and Supplies.
 King, J. M. & Co., Waterford, N. Y.
 Sellers, Wm. & Co., Inc., Phila.

Mallets.
 N. Y. Mallet & Handle Works, N. Y.

Nipples.
 Johnson, S. C., Racine, Wis.

Measuring Tapes.
 Keuffel & Esser Co., 127 Fulton St., N. Y.
 Larkin Rule Co., Saginaw, Mich.

Mechanical Instruction.
 Correspondence School of Mechanics
 Scranton, Pa.

Metals.
 Fearing, Wm. S., 100 Chambers, N. Y.
 Hendricks Bros., 49 Cliff, N. Y.
 Naylor & Co., 45 Wall, N. Y.

Metal Brokers.
 American Metal Co., N. Y.

Metallurgists.
 Britton J. Blodgett, Phil

Milk Cans Trimmings.
 Shepard, Sidney & Co., Buffalo, N. Y.

Milling Machines.
 Cin. Milling Mch. Co., Cincinnati, Ohio.

Mining Knives.
 Palmer Hdw. Mfg. Co., Troy, N. Y.

Mine Lamps.
 Darby, Edw. & Sons, Phila., Pa.
 Leonard, B. E., Scranton, Pa.

Mining Screens.
 Harrington & King Perforating Co.
 Chicago, Ill.
 Howard & Morse, 45 Fulton, N. Y.

Models, Makers of.
 Franklin, H. H. Mfg. Co., Syracuse, N. Y.

Molding Sand.
 Obermayer, S. Co., Cincinnati, O.

Motors, Water and Electric.
 O. & C. Electric Co., 402 and 404
 Greenwich St., N. Y.
 Dallett, Thos. H. & Co., Phila., Pa.

Wall Machinery.
 Pittsburgh Mfg. Co., Pittsburgh, Pa.

Walls (Out) and Spikes.
 Borden & Lovell, 70 West, N. Y.
 Cumberland Nail & Iron Co., Phila.
 Oxford Iron Co., 81 Washington,
 Pottstown Iron Co., Pottstown, Pa.
 Riverside Iron Wks., Wheeling, W. Va.

Nickel Platers' Supplies.

Colburn Electric Mfg. Co., Fitchburg, Mass.

Norway Shapes, Rollers of.

Rowland, William & Harvey, Frankford, Philadelphia

Novelty Manufacturers.

Franklin, H. H. Mfg., Syracuse, N. Y.

Nut Machines.

Ounham Nut Mch. Co., Unionville, O.

Nuts, Bolts, &c., Makers of.

American Bolt Co., Lowell, Mass.
 American Screw Co., Providence, R. I.
 Blake & Johnson, Waterbury, Conn.
 Eastern Forge Co., Boston, Mass.
 Fassell, Wm. H. Co., Pawtucket, R. I.
 Mt. Carmel Bolt Co., Mt. Carmel, Conn.
 Pennsylvania Bolt & Nut Co., Lebanon, Pa.
 Port Chester Bolt and Nut Co., Port Chester, N. Y.
 Russell, Burdall & Ward, Port Chester, N. Y.
 Seaborn, J. B. & Son, Reading, Pa.
 Wilson, J. Fred, Worcester, Mass.
 Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.

Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Oil Stones.

Pike Mfg. Co., Pike Station, N. H.

Oil Stoves.

Foster Stove Co., Ironton, O.
 Glazier Stove Co., Chelsea, Mich.

Ores.

Wister, Francis, Philadelphia, Pa.

Ox Shoes.

Scranton Forging Co., Scranton, Pa.

Packing.

Morrison, Robt., St. Louis, Mo.
 N. Y. Belting & Packing Co., Ltd., N. Y.

Padilocks.

Ames Sword Co., Chicopee, Mass.
 Fraim, E. T., Lancaster, Pa.
 Hillebrand & Wolf, Phila., Pa.

Paint.

Dixon, Jos. Crucible Co., Jersey City, N. J.

Paint Burners.

Dangler Stove & Mfg. Co., Cleveland, O.

Paint Cans.

Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Pants Stretcher.

Covert Mfg. Co., West Troy, N. Y.

Patent Solicitors.

Howson & Howson, Phila. & Wash'gton.
 Jenner, E. W. T., Washington, D. C.
 Stocking, E. B., Washington, D. C.

Perforated Metal.

Clinton Wire Cloth Co., Clinton, Mass.
 Harrington & King Perforating Co., Chicago, Ill.
 Hendrick Mfg. Co., Ltd., Carbondale, Pa.

Phosphor Bronze.

Phosphor Bronze Smelting Co., Limited, 612 Arch, Philadelphia.

Phosphor Tin.

Crescent Phosphorized Metal Co., Philadelphia, Pa.
 Haik & Naumann, 516 Pearl, N. Y.

Picks and Mattocks.

Plumo, Fayette R., Philadelphia, Pa.

Pig Iron.

Houston, C. B. & Co., Philadelphia, Pa.
 Montour Iron & Steel Co., Danville, Pa.
 Naylor & Co., 45 Wall, N. Y.
 Pilling & Crane, Philadelphia, Pa.
 Samuel, Frank, Philadelphia, Pa.

Pig Iron Storage.

Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pile Drivers.

Vulcan Iron Wks., Chicago, Ill.

Pipe, Bent.

National Pipe Bending Co., New Haven

Pipe Cutting and Threading Machines.
 Bignall & Keeler Mfg. Co., St. Louis, Mo.
 Merrill Mfg. Co., Toledo, O.
 Penicost Henry B. & Co., Philadelphia.
 Saunders's Sons, D., Yonkers, N. Y.

Pipe Grips.

Prentiss Vise Co., 44 Barclay, N. Y.

Pipes, Fittings, &c., Makers of.

McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas, Makers of.
 Cumberland Nail & Iron Co., Phila., Pa.
 Donaldson Iron Co., Emaus, Pa.
 Riverside Iron Works, Wheeling, W. Va.
 Wood, R. D. & Co., Philadelphia, Pa.

Plane Irons, Manufacturers of.

Buck Bros., Millbury, Mass.

Planes, Manufacturers of.

Stanley Rule & Level Co., N. Y.

Plated Ware.

Boaromar, L. & Son, New Haddar Ct.
 Holmes & Edwards Silver Co., Bridgeport, Conn.
 Rogers, Wm. Mfg. Co., Hartford, Ct.

Plate, Iron and Steel, Mfrs of.

Etina-Standard Iron & Steel Co., Bridgeport, O.

Lukens Iron & Steel Co., Coatesville, Pa.

Mahoning Valley Iron Co., Youngstown, Ohio.

Woodward-McLean Co., Pittsburgh, Pa.
 Wolfvain & Sons, Reading, Pa.
 Pottstown Iron Co., Pottstown, Pa.
 Pottsville Iron & Steel Co., Pottsville, Pa.
 Singer, Nimick & Co., Pittsburgh, Pa.
 The Mahoning Valley Iron Co., Youngstown, O.
 Wellman Iron & Steel Co., Thurlow, Pa.
 Wood Alan Co., Philadelphia, Pa.

Plating, Nickel, Brass and Silver.

Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Pokers and Lifters.

Troy Nickel Works, Troy, N. Y.

Polishing Machines.

Watson & Stillman, 204 E. 43d, N. Y.

Post Hole Diggers.

Buckeye Mfg. Co., Union City, Ind.
 Gibbs Mfg. Co., Canton, Ohio.
 Wister, L. & R. & Co., Philadelphia, Pa.

Poultry Netings.

Barnum, E. T., Detroit, Mich.
 Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
 N. J. Wire Cloth Co., Trenton, N. J.
 "Silver Finish."
 Tyler Wire Wks. Co., W. S., Cleveland, O.
 Wright & Colton Wire Cloth Co., Worcester, Mass.

Powder.

Laffin & Rand Powder Co., 29 Murray
 New York Powder Co., 62 Liberty St., N. Y.

Power Hack Saws.

Millers Falls Co., 93 Reade St., N. Y.

Power Hammers.

Selden Mch. Co., New Haven, Conn.
 Diemel & Eisenhardt, Philadelphia.
 Dupont Mfg. Co., St. Johnsbury, Vt.
 Jenkins & Lingie, Bellefonte, Pa.
 Long & Alstatter Co., Hamilton, Ohio

Presses, Dies, &c.

E. W. Bliss Co., Brooklyn, N. Y.
 Crosby, G. A. & Co., Chicago, Ill.
 Stark Mch. & Tool Co., Buffalo, N. Y.
 Stiles & Parker Press Co., Brooklyn, N. Y.
 Waterbury Mch. Co., Waterbury, Conn.

Presses, Power, Makers of.

Bliss, E. W. Co., Brooklyn, N. Y.
 Manville, E. J. Mch. Co., Waterbury, Ct.
 Merriman, A. H., Meriden.
 Stark Mch. & Tool Co., Buffalo, N. Y.
 Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pulleys.

Keystone Clutch Mch. Wks., Phila., Pa.
 Lake, J. H. & D. Co., Massillon, Ohio.

Pumping Machinery.

Dean Bros. Steam Pump Works, Indianapolis, Ind.
 McGowan, J. H. & Co., Cincinnati, O.
 Maslin, J. & Son, Jersey City, N. J.
 Newark Iron Wks. Co., So. Norwalk, Conn.
 Southwark Fdy. & Mch. Co., Phila., Pa.
 Valley Pump Wks., Easthampton, Mass.
 Worthington, Henry R., 86 & 88 Liberty St., N. Y.

Pumps, Makers of.

Bellevue Pump Co., Bellevue, Iowa.
 Deming Co., Salem, O.
 Douglas, W. & B., Middletown, Conn.
 Mast, Foss & Co., Springfield, O.
 Myers, F. E. & Bro., Ashland, O.

Punches and Shears, Hand and Power.

E. W. Bliss Co., Brooklyn, N. Y.
 Cockburn Barrow & Mch. Co., Jersey City, N. J.
 Crosby, G. A. & Co., Chicago, Ill.
 Henderer, A. L., Wilmington, Del.
 Long & Alstatter Co., Hamilton, Ohio.
 Stark Mch. & Tool Co., Buffalo, N. Y.
 Stiles & Parker Press Co., Brooklyn, N. Y.
 Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
 Watson & Stillman, 204 E. 43d, N. Y.

Rails, Old and New.

Perry, W. H. & Co., Providence, R. I.

Rat and Mouse Traps.

Burditt & Williams, Boston, Mass.
 Estey, W. S., 65 Fulton, N. Y.
 Ripley Mfg. Co., Unionville, Conn.

Razors.

Electric Cutlery Co., 113 Chambers, N. Y.
 J. R. Torrey Razor Co., Worcester, Mass.

Reels.

Hendryx, A. B. Co., New Haven, Conn.

Refrigerator Door Fasteners.

Conroy, P. J. & Co., Philadelphia.

Refrigerators.

Challenge Corn Planter Co., Grand Haven, Mich.

Rivets.

Blake & Johnson, Waterbury, Conn.
 Boyce Rivet Co., Muncie, Ind.
 Burden Iron Co., Troy, N. Y.
 Cobb & Drew, Plymouth, Mass.
 Sternbergh, J. B. & Son, Reading, Pa.
 Townsend, W. P. & Co., New Brighton, Pa.

Riveting Machines.

Adt, Jno. & Sons, New Haven, Conn.

Rock Drills.

Band Drill Co., 23 Park Place, N. Y.

Rolling Mill Machinery

Birmingham Iron F'dry, Birmingham, Conn.
 Booth, The Lloyd, Co., Youngstown, O.
 Leeburg Foundry & Mch. Co., Pittsburgh, Pa.
 Mahoning F'dry & Mch. Co., Danville, Pa.
 Morgan Construction Co., Worcester, Mass.
 Robinson-Rea Mfg. Co., Pittsburgh.
 Totten & Hogg Iron and Steel F'dry Co., Pittsburgh, Pa.
 Trethewey Mfg. Co., Pittsburgh, Pa.
 Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Roll Lathes.

Totten & Hogg Iron & Steel F'dry Co., Pittsburgh, Pa.

Rolls, Chilled, Sand and Steel.

Booth, The Lloyd, Co., Youngstown, O.
 Garrison, A. F'dry, Co., Pittsburgh, Pa.
 Seaman, Sleeth & Black, Pittsburgh.
 Totten & Hogg Iron and Steel F'dry Co., Pittsburgh, Pa.

Roofing.

Boston Bridge Works, Boston, Mass.
 Cambridge Roofing Co., Cambridge, O.
 Johns, H. W. Mfg. Co., 87 Maiden Lane, N. Y.

Rope and Web Goods.

Covert Mfg. Co., West Troy, N. Y.
 Covert's Saddlery Wks., Farmer, N. Y.

Rope Wheels.

Cresson, Geo. V. Co., Philadelphia, Pa.

Rubber Goods.

Canfield, H. O., Bridgeport, Conn.

Rules, Manufacturers of.

Keuffel & Esser Co., 127 Fulton St., N. Y.
 Larkin Rule Co., Saginaw, Mich.
 Standard Tool Co., Athol, Mass.
 Stanley Rule & Level Co., 29 Chambers, N. Y.

Rust Preventive.

Bridgeport Gun Implement Co., 312-315 Broadway, N. Y.

Sand Paper.

Baeder, Adamson & Co., Phila., Pa.

Sash Balances.

Caldwell Mfg. Co., Rochester, N. Y.
 Fairman Sash Balance Co., Rochester, N. Y.
 Vanderbilt Sash Balance Co., Canandaigua, N. Y.

Sash Cords and Chains.

Morton, Thos., 65 Elizabeth, N. Y.
 Ossawan Mills Co., Norwich, Conn.
 Samsen Cordage Works, Boston, Mass.
 Smith & Egge, Mfg. Co., Bridgeport.

Sash Hooks.

Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.

Empire Portable Forge Co., Lansingburgh, N. Y.
 Palmer Hardware Mfg. Co., Troy, N. Y.

Sash Weights.

Brown, E. E. & Co., Philadelphia, Pa.

Saw Filing Machines.

Diston, Henry & Sons, Philadelphia, Pa.

Saws, Makers of.

Diston, Henry & Sons, Phila., Pa.
 National Saw Co., 95 Reade St., N. Y.
 Simonds Mfg. Co., Fitchburg, Mass.

Saw Vises.

Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Saw Sets.

Taintor Mfg. Co., 84-86 Chambers, N. Y.

Scales, Manufacturers of.

Buffalo Scale Co., Buffalo, N. Y.
 Chatillon, John & Sons, 85-89 Cliff, N. Y.

Scrapers, Road.

Am. Steel Scraper Co., Sidney, Ohio.
 Kilbourne & Jacobs Mfg. Co., Columbus, O.
 Sidney Steel Scraper Co., Sidney, O.

Screens, Coal and Ore.

Hendrick Mfg. Co., Ltd., Carbondale, Pa.

Screw Cutting Machinery.

Wells Bros. & Co., Greenfield, Mass.

Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.

Brown, R. H. & Co., New Haven, Conn.
 Mayhew, A. H. Co., Shelburne Falls, Mass.

Screw Plate and Pipe Cutter.

Jarecki Mfg. Co., Erie, Pa.

Screws, Makers of.

American Screw Co., Providence, R. I.
 Blake & Johnson, Waterbury, Conn.
 Wm. H. Haskell Co., Pawtucket.
 Miles, F. S., 205 Quarry, Philadelphia.
 Reynolds & Co., New Haven, Conn.
 Worcester Machine Screw Co., Worcester, Mass.

Seroll Saws.

Barnes, W. F. & John, Rockford, Ill.
 Seneca Falls Mfg. Co., Seneca Falls, N. Y.

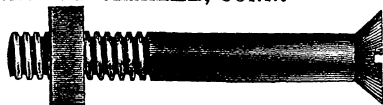
- Allentown Rolling Mill.** Allentown, Pa.
Leokhart Iron & Steel Co. Pittsburg, Pa.
Pasaleo Rolling Mill Co. Paterson, N.J.
Pottsville Iron & Steel Co. Pottsville, Pa.
Roberts, A. & P. & Co. Phila., Pa.
The Phoenix Iron Co. Phila., Pa.
Tudor Iron Works. St. Louis, Mo.
- Shears and Scissors.**
Acme Shear Co. Bridgeport, Conn.
Reinischs, R. Sons Co. Newark, N. J.
- Sheet Iron and Steel, Manufacturers of.**
Etma-Standard Iron and Steel Co. Bridgeport, O.
Cambridge Iron & Steel Co. Cambridge, Ohio.
Chess Bros. Pittsburg, Pa.
Mahoning Valley Iron Co. Livingston, Ohio.
Moorehead-McCleane Co. Pittsburg, Pa.
Pierson & Co. 29 Broadway, N. Y.
Singer, Nimick & Co., Ltd. Pittsburgh, Pa.
The Mahoning Valley Iron Co. Youngstown, O.
Alan Wood Co. Philadelphia.
W. Dewees Wood Co. McKeesport, Pa.
- Sheet Metal Work.**
Clark & Cowles. Plainville, Conn.
- Sheet Zinc.**
Mathlessen & Hegeler Zinc Co., La Salle, Ill.
- Shelf Brackets.**
Koch, A. B. & Co., Peoria, Ill.
- Sinks.**
Douglas, W. & B., Middletown, Conn.
- Skates, Ice.**
Dame, Stoddard & Kendall, Boston, Mass.
Lovell, Jno. P. Arms Co., Boston, Mass.
Sickels, Sweet & Lyon, 35 Barclay St., N. Y.
Winslow, Sam'l, Skate Mfg. Co., Worcester, Mass.
- Skates, Roller.**
Henley, M. C., Richmond, Ind.
Winslow, Sam'l, Skate Mfg. Co., Worcester, Mass.
- Smelting Works.**
Reeves, Paul S., 760 S. Broad, Phila.
- Soldering Coppers.**
Clendenin Bros., Baltimore, Md.
Covert Mfg. Co., West Troy, N. Y.
- Speaking Tubes.**
Ostrander, W. R. & Co., 204 Fulton St., N. Y.
Wollensak, J. F., Chicago, Ill.
- Specialties, Pat. Articles.**
Konigslow, O., Cleveland, O.
Rhodes, L. E. Co., Hartford, Conn.
- Spelter.**
Mathlessen & Hegeler Zinc Co., La Salle, Ill.
- Spoons and Forks.**
Boardman, L. & Son, New Haddam, Conn.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.
- Sporting Goods.**
Hartley & Graham, 313-315 B'way, N. Y.
- Springes.**
Dunbar Bros., Bristol, Conn.
Miller & Van Winkle, Brooklyn, N. Y.
Morgan Spring Co., Worcester, Mass.
Boland, Wm. & Harvey, Phila., Pa.
Sabin Machine Co., Montpelier, Vt.
Tuck Mfg. Co., Brockton, Mass.
Washburn & Moen Mfg. Co., Worcester, Mass.
Wolf, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
- Spring Hinges.**
Fullman Sash Balance Co., Rochester, N. Y.
Stover Mfg. Co., Freeport, Ill.
Van Wagoner & Williams Co., 14 Warren St., N. Y.
- Stamped Ware.**
Am. Stamping Co., 104 & 106 John St., New York
- Stamping Works.**
Cleveland Stamping & Tool Co., Cleveland, O.
- Staples.**
Cobb & Drew, Plymouth, Mass.
Titchener E. H. & Co., Binghamton, N. Y.
- Steam Gauges.**
Ashcroft Mfg. Co., 111 Liberty St., N. Y.
Bristols Mfg. Co., Waterbury, Conn.
- Steam Hammers, &c., Makers of.**
Dienelt & Eisenhardt, Philadelphia.
Dugdon, Richard, 24 Columbia Street, N. Y.
Trethewey Mfg. Co., Pittsburgh, Pa.
- Steam Heating.**
Webster Warren & Co., Camden, N. J.
- Steam Separators.**
Goucart Mfg. Co., 32 Cortland St. N. Y.
Harrison Safety Boiler Wks. Phila. Pa.
- Steel. Cold Rolled Strip.**
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
- Steel Figures and Alphabets.**
Hoesig, C. W., 52 Fulton St., N. Y.
Howard, W. 81 Fulton, N. Y.
Wolf, C. H., 177 William St., N. Y.
- Steel Importers.**
Abbott, Wheelock & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, Eng. land, or 91 John, N. Y.
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 83 John, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'way, N. Y.
Wolf, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.
- Steel (Mushet's Special).**
Jones, B. M. & Co., Boston.
- Steel Manufacturers.**
Etma-Standard Iron & Steel Co., Bridgeport.
Bethlehem Iron Co., S. Bethlehem, Pa.
Baker, Hermann & Co., 103 Duane St. Carbon Steel Co., Pittsburgh, Pa.
Chester Steel Castings Co., Phila., Pa.
Chrome Steel Works, Brooklyn, N. Y.
Crecent Steel Co., Pittsburgh, Pa.
Eiken & Co., Hagen, Germany.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, Eng. land, or 91 John, N. Y.
Kayser, Ellison & Co., Sheffield, Eng. La Belle Steel Co., Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorehead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland, Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Taylor Iron & Steel Co., High Bridge, N. J.
Wordlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
- Steel, Manufacturers' Agents.**
Barnes, C. K. & Co., Philadelphia, Pa.
Corning, Edw. & Co., 29 B'way, N. Y.
Frasse Co., 19 Warren St., New York.
Lindsay, Jas. G. & Co., Phila., Pa.
Pierson & Co., 29 Broadway, N. Y.
- Steel Rails, Manufacturers of.**
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Johnstown, Pa.
Montour Iron & Steel Co., Danville, Pa.
Riverside Iron Wks., Wheeling, W. Va.
- Steel, Tool.**
Frankford Steel Co., Philadelphia, Pa.
Jessop, Wm. & Sons, Sheffield, Eng. land, 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
La Belle Steel Co., Pittsburgh, Pa.
- Step Ladders.**
Bicycle Step Ladder Co., Chicago, Ill.
Croissant, M., Albany, N. Y.
- Stocks and Dies.**
Armstrong Mfg. Co., Bridgeport, Conn.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunders' Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
- Stone Linings.**
Ostrander Fire Brick Co., Troy, N. Y.
- Stove Pipe Thimbles.**
Cheney, S. & Son, Manlius, N. Y.
- Stove Trimmings.**
Troy Nickel Works, Troy, N. Y.
- Street Lamps.**
Steam Gauge & Lantern Co., Syracuse, N. Y.
- Strops.**
Electric Outlery Co., 113 Chambers, N. Y.
J. R. Torrey & Co., Worcester, Mass.
- Structural Iron Work.**
Boston Bridge Wks., Boston, Mass.
Lindsay, Jas. G. & Co., Phila., Pa.
Wrought Iron Bridge Co., Canton, O.
- Sulphuric Acid.**
Mathlessen & Hegeler Zinc Co., La Salle, Ill.
- Tacks, Brads, Staples, &c.**
Atlas Tack Corporation, Boston, Mass.
Clendenin Bros., Baltimore, Md.
Cobb & Drew, Plymouth, Mass.
Grand Crossing Tack Co., Grand Crossing, Ill.
- Taps and Dies.**
Butterfield & Co., Derby Line, Vt.
Carpenter, J. M., Tap & Die Co., Pawtucket, R. I.
Manning, Maxwell & Moore, 111 Liberty St., N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
- Testing Laboratories.**
Riehle Bros. Testing Mch. Co., Philadelphia.
- Testing Machines.**
Riehle Bros. Testing Mch. Co., Phila.
- Theatrical Hardware.**
Wollensak, J. F., Chicago, Ill.
- Thill Springs.**
Frost Thill Spring Co., Boston, Mass.
Sabin Machine Co., Montpelier, Vt.
- Timber and Mineral Land.**
Robertson, E. Co., Cincinnati, O.
- Time Record.**
Scattergood, H. W., Phila., Pa.
- Tinning Process.**
Sands, Thomas, Nashua, N. H.
- Tin Plate Machinery.**
Lloyd Booth Co., Youngtown, Ohio.
- Tinware.**
Am. Stamping Co., 104 & 106 John St.
- Tire Upsetters.**
Butts & Ordway, Boston, Mass.
- Tee Calks, Steel.**
Burke, P. F., Boston, Mass.
- Tool Chests.**
Am. Tool Co., 200 W. Houston St., N. Y.
- Tools.**
Grown, R. H. & Co., New Haven, Conn.
Frasse Co., 19 Warren St., New York.
Maynew, H. H. Co., Shelburne Falls, Mass.
Millers Falls Co., 98 Reade, N. Y.
Nicol & Co., Chicago, Ill.
Richardson, C. F. & Son, Athol, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, Street, L. S., Athol, Mass.
Wilkinson, A. J. & Co., Boston, Mass.
- Tools, Blacksmith and Wheelwrights.**
Buffalo Forge Co., Buffalo, N. Y.
Butts & Ordway, Boston, Mass.
Champion Blower & Forge Co., Lancaster, Pa.
Plumb, Fayette R., Philadelphia, Pa.
Wiley & Russell Mfg. Co., Greenfield, Mass.
- Tools, Steam and Gas Fitters'.**
Saunders' Sons, D., Yonkers, N. Y.
- Torches, Oil and Gasolene.**
Dangler Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp Co., Cleveland, Ohio.
- Transom Lifters.**
Wollensak, J. F., Chicago, Ill.
- Trucks, Manufacturers of.**
Clark, G. P., Windsor Locks, Conn.
Lansing Wheelbarrow Co., Lansing, Mich.
- Tubes, Seamless Drawn Copper.**
Ansonia Brass & Copper Co., 19 and 21 City, N. Y.
Randolph & Clowes, Waterbury, Conn.
- Tubes, Steel.**
Ellwood Shafting & Tube Co., Ellwood City, Pa.
Lang's John S. Son & Co., 4 Fletcher St., New York.
U. S. Projectile Co., Brooklyn, N. Y.
- Tumbling Barrels.**
Henderson Bros., Waterbury, Conn.
- Turnbuckles.**
Cleveland City Forge & Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.
- Twist Drills, Makers of.**
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
New Process Twist Drill Co., Taunton, Mass.
Standard Tool Co., Cleveland.
- Valves, Gas, Water and Steam.**
Best, Fox & Co., Pittsburgh, Pa.
Chapman Valve Mfg. Co., Boston.
Eynon-Evans Mfg. Co., Philadelphia, Pa.
Jenkins Bros., 71 John, N. Y.
Lunkenheimer Co., Cincinnati, O.
McNab & Harlin Mfg. Co., 66 John, N. Y.
Mason Regulator Co., Boston, Mass.
- Ventilator Appliances.**
Howard & Morse, 45 Fulton, N. Y.
- Vise Jaws.**
Newark Mch. Tool Co., Newark, N. J.
- Vises.**
Capital Mch. Tool Co., Auburn, N. Y.
Hollands Mfg. Co., Erie, Pa.
Howard Iron Works, Buffalo, N. Y.
Millers Falls Co., 98 Reade St., N. Y.
Prentiss Vise Co., 44 Barclay, N. Y.
Van Wagoner & Williams Co., 14 Warren St., N. Y.
- Wagon Jacks.**
Covert Mfg. Co., West Troy, N. Y.
Covert's Saddlery Works, Farmer, N. Y.
- Washers.**
Haskell, Wm. H. Co., Pawtucket, R. I.
Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H. & Son, Reading, Pa.
- Washing Machines.**
Richmond Cedar Works, Richmond, Va.
- Water Filters.**
Darling Filter Co., Cleveland, O.
- Water Meters.**
Worthington, Henry R., 86 & 88 Liberty St., N. Y.
- Water Wheels.**
Poole, Robt. & Son Co., Baltimore, Md.
- Wheelbarrows.**
Amer. Steel Scraper Co., Sidney, Ohio.
Cockburn Barrow & Mch. Co., Jersey City, N. J.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Lansing Wheelbarrow Co., Lansing, Mich.
Sidney Steel Scraper Co., Sidney, O.
Sweatt Mfg. Co., Minneapolis, Minn.
- Window Cord, Makers of.**
Samson Cordage Works, Boston, Mass.
- Wire, Manufacturers of.**
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Miller & Van Winkle, Brooklyn, N. Y.
New Castle Wire Nail Co., New Castle, Pa.
New Haven Wire Mfg. Co., New Haven, Conn.
Prentiss, Geo. W. & Co., Holyoke, Mass.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester.
Wetherell Bros., 93 Liberty St., F. Y.
Wolf, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Wright & Colton Wire Cloth Co., Worcester, Mass.
- Wire Cloth.**
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 65 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
Howard & Morse, 45 Fulton, N. Y.
N. J. Wire Cloth Co., Trenton, N. J.
Reliance Wire & Iron Wks., Milwaukee, Wis.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
Wright & Colton Wire Cloth Co., Worcester, Mass.
W. S. Tyler Wire Works Co., Cleve'd.
- Wire Cutters.**
King, J. M. & Co., Watertown, N. Y.
- Wire Dies.**
McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 John, N. Y.
- Wire Fences.—See Fencing, Iron and Wire.**
- Wire Goods, Manufacturers of.**
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
Ludlow-Saylor Wire Co., St. Louis.
Ossawan Mills Co., Norwalk, Conn.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
Williamson, C. T. Wire Novelty Co., Newark, N. J.
- Wire Machinery.**
Am. Tool Wks., Cleveland, O.
Hamville, E. J. Mch. Co., Waterbury, Ct.
Morgan Construction Co., Worcester, Mass.
Waterbury Mch. Co., Waterbury, Conn.
- Wire Straightening and Outting Machinery.**
Adt, John & Son, New Haven, Conn.
- Wire Nails.**
Bond Nail Co., Raynham, Mass.
Indiana Wire Fence Co., Crawfordsville, Ind.
Kilmer Mfg. Co., Newburg, N. Y.
New Castle Wire Nail Co., New Castle, Pa.
Phillips, Townsend & Co., Phila., Pa.
Salem Wire Nail Co., Salem, O.
Whitney, A. R. & Co., New York City
- Wire Rods, Steel.**
New Castle Wire Nail Co., New Castle, Pa.
Washburn & Moen Mfg. Co., Worcester, Mass.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wolf, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.
- Wire Rope, Iron and Steel Makers.**
Broderick & Bascom Rope Co., St. Louis, Mo.
California Wire Works, San Francisco.
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis.
Trenton Iron Co., Trenton, N. J.
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- Wrenches, Manufacturers of.**
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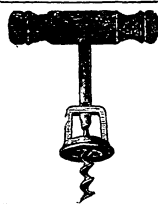
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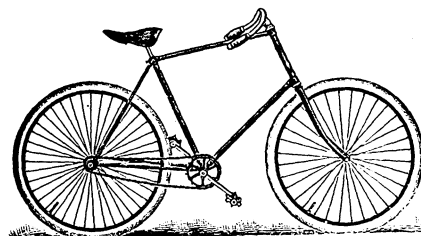
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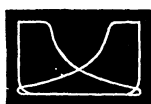
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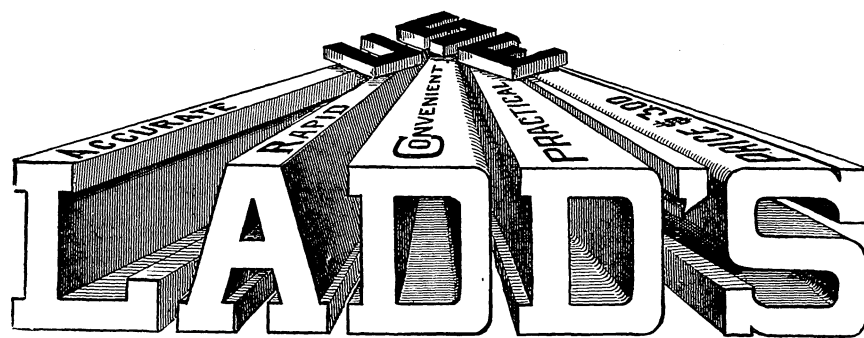
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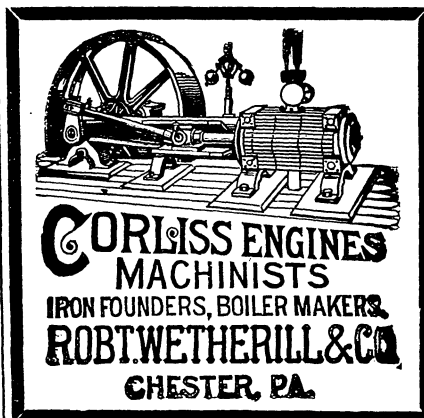
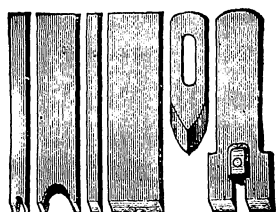
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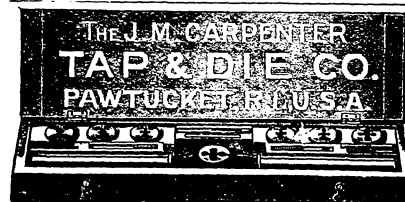
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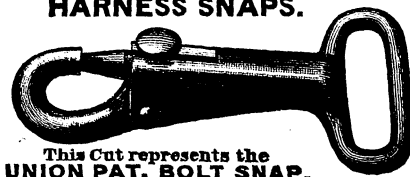
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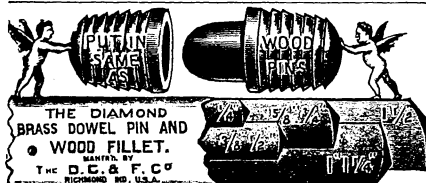
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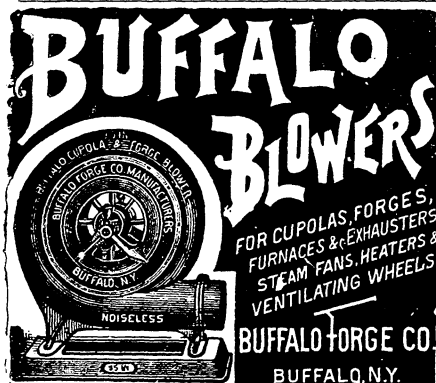
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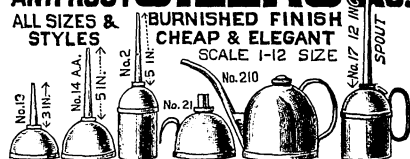
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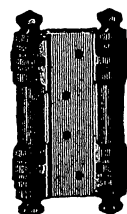
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THE IRON AGE

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Electricity on the Canal

C. A. Barnes, electrician having in charge the special experiment of electricity as a motive power on the Erie Canal, has made his report to the Public Works Department. He says: "An average of 24.87 electrical horse-power was required to propel the boat at the rate of 2.65 miles per hour, against both the current in the canal and a strong head wind, while 26.21 electrical horse-power was required to attain a speed of 4.24 miles per hour in the opposite direction. It should, however, be remarked that the machinery was not in proper condition, nor well adapted to

the line of the canal; and this will necessarily vary at different places and with different methods of production. Where water power is available and can be cheaply developed, the cost of power will obviously be much less than where it must be produced by steam engines."

Galvanized Iron for Stacks.

Complaint is frequently heard, says the *Boiler Maker*, that the life of iron and steel smoke stacks is so short. This is especially marked where soft coal is the fuel used, the presence of sulphur acting so as to rapidly rust it

The Buffington-Crozier Disappearing Gun Carriage.

On December 14 a Buffington-Crozier disappearing gun carriage mounting an 8-inch breech loading rifle was tested at the Sandy Hook Proving Ground with most remarkable results. It required only 12 minutes and 3 seconds for this carriage, worked by seven gunners, to fire ten shots. The wonderful aspect of this performance will be understood when it is explained that with every shot the rifle, weighing 33,000 pounds, was lifted from its loading position, shown in Fig. 2, and projected forward as though over a para-

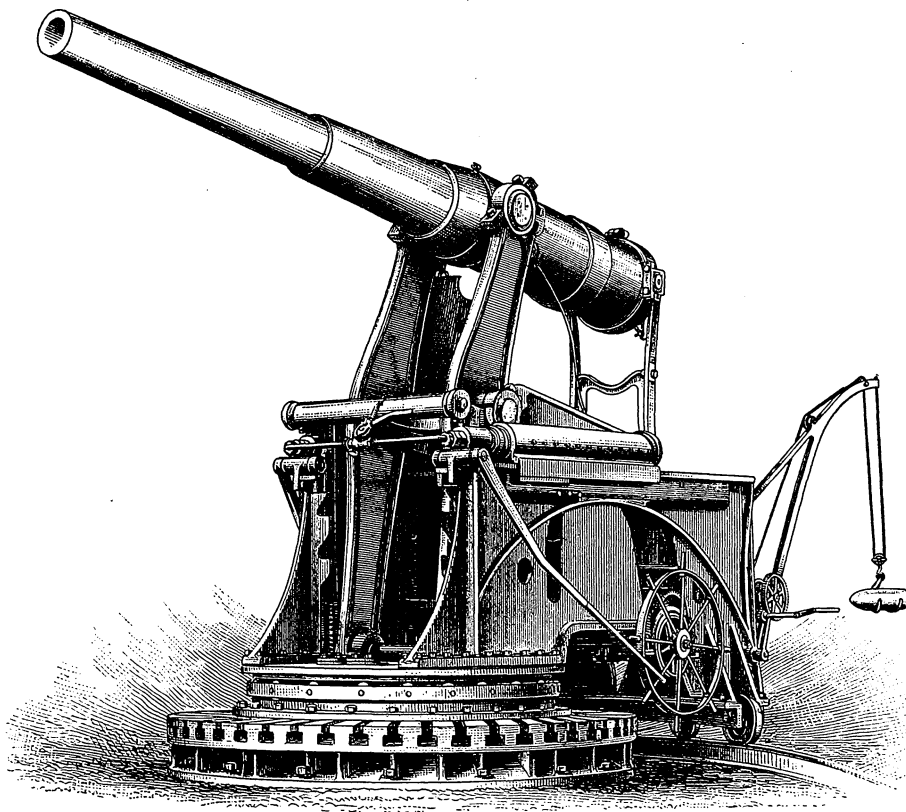


Fig. 1.—Gun in Firing Position.

THE BUFFINGTON-CROZIER DISAPPEARING GUN CARRIAGE.

the purpose, inasmuch as it required 5.35 electrical horse-power to revolve the wheel at the same rate of speed out of water as it did while making the test in the canal. The loss of efficiency in the motors may fairly be ascribed to the fact that they were operated with a current of only about 300 volts on the average during the test, whereas they were designed to be operated with a current of 500 volts. Taking all these circumstances into account, it may be estimated that with a stronger current and better machinery the same speed would have been reached with an expenditure of not more than 21 electrical horse-power. In regard to the cost of electrical propulsion but little definite knowledge can be deduced from these experiments. The essential element in the case is the cost of establishing and maintaining the necessary power along

away. Paint offers but a short relief. We have in mind two roofs near by, both of the same thickness of iron and put on at the same time. One was painted, but is now destroyed by rust. The other, of galvanized iron and not painted, shows no evidence of deterioration. This suggests the use of galvanized steel for stack, for pipe, for water, gas or compressed air. Our records show that the price of galvanized iron or steel sheets to-day is no more than the black sheets sold for five years ago. A safe difference to figure on is 1½ cents per pound advance over the price of the black for galvanized sheets. This difference will undoubtedly be lowered in process of time.

The *Railway Age* reports that the new railroad mileage built in 1893 amounted to 2630 miles, the lowest for many years.

pet, as represented in Fig. 1. As the shot left the muzzle when fired the gun, recoiling without a jar, settled lightly upon its carriage bed ready for the next load.

The principle on which the gun is constructed was first experimented with by Col. A. R. Buffington some 20 years since, but he was unable to make it practicable. Modifications and improvements were made by Capt. Wm. Crozier, who brought the carriage to its present perfected condition. The underlying principle of the mechanism is founded upon the geometric theories that if a right line move so that two of its points remain upon two other lines making an angle with each other the extremity or any other point of the moving line will describe an ellipse. The trunnions of the gun are mounted at the ends of two levers, which in turn

are mounted at their centers on two hydraulic buffing cylinders, which are placed one on each side of the top of the carriage. The other ends of these levers carry the counterweight, a mass of metal weighing 37,000 pounds, placed in the center of the carriage under the gun. When the gun is in the loading position, Fig. 2, the hydraulic cylinders are thrown to the extreme rear end of the carriage, carrying with them the trunnions of the supporting levers and raising the counterweight, which is held in its elevated position by a system of pawls and ratchets. When the counterweight is released, it throws the rear ends of the gun bearing levers forward and upward. The buffing cylinders are drawn forward over their stationary pistons to the front end of the carriage. At the same time the breech of the gun is carried up by steel arms, whose upper ends are pivoted to the gun and whose lower ends are pivoted to sliding blocks which move in circular grooves and which may be raised or lowered to give the desired elevation. When the discharge occurs the force of recoil throws back the upper ends of the levers, which, in turn, force the cylinders to the rear end of the carriage and raise the counterweight to its original position, where it is caught and held by the pawls and ratchets. Neither the gun nor any part of the carriage is exposed above the protecting parapet except for the instant of firing. The carriage allows a total vertical range of 20°, 15 of elevation and 5 of depression. It is calculated that two-thirds of the force of the recoil comes upon the hydraulic cylinders, the other third being used in raising the counterweight. It will be seen that the first movement of the gun at discharge is along a path nearly horizontal and that the final movement as it disappears behind the parapet is nearly vertical. In the test each shot weighed 400 pounds and was fired with a charge of 125 pounds of brown prismatic powder.

The carriage weighs 100,000 pounds. The steel castings were furnished by the Midvale Steel Company of Philadelphia, and the work was done by the Southwark Foundry & Machine Company of the same place.

The test was witnessed by Gen. D. W. Flagler, Chief of Ordnance; Col. H. L. Abbot of the Engineer Corps; President Brooks of the Southwark Foundry, Philadelphia, where the machinery of the carriage was manufactured; Major Clifton Comly and Capt. Frank Heath of the Ordnance Board; Lieuts. F. P. Peck and M. F. Harmon and Capt. A. E. Piorkowski of the German army.

The record made during this test has no equal in the history of modern ordnance. It excels the rapid fire tests of 8-inch guns at Annapolis, where the rifles were mounted on stationary carriages of ordinary pattern, and where eight shots in 10 minutes and 20 seconds was the best work done. Further than this, it places at the disposal of the Government a disappearing gun carriage unequalled by anything of the kind employed abroad.

The wholesale dumping of waste material and garbage into the waters of New York harbor threatens to cause a serious obstruction to navigation. General Casey, Chief of Engineers of the War Department, has transmitted a report on the subject to Secretary Lamont; and a bill will be presented to Congress remedying the defective law at present in force, which is inadequate to prevent the practice complained of.

The Hydrophone.

The principal object of this simple apparatus is to give warning to a port or fleet of the approach of a torpedo boat, even if the latter is totally submerged and therefore quite invisible. As described in the *London Times* it consists essentially of two parts, one submerged in the sea at a proper distance from the port or fleet to be warned, and at a depth sufficient to escape the surface agitation. This part may be described as an iron bell jar, which, on being plunged mouth downward into the water, retains a volume of air in the upper portion or bottom, where a copper box, protecting the sensitive organ of the apparatus, is fixed. The organ in question is merely a very delicate vibratory contact, which makes and breaks an electric circuit connecting the submerged bell with the indicator or second part of the

which the current passes, with an armature free to oscillate when the current is rapidly made and broken—that is to say, when the current becomes intermittent. The motions of this armature can be seen by an observer if he chooses to watch, but actual observation is not required, for the indicator itself gives the alarm. This takes place when the swing of the armature carries it within the attraction of a magnetic contact piece fixed near it. The armature is then drawn to the contact piece and held fast there. The swinging armature and the contact piece are connected in the circuit of a local battery, and, when they meet, the current flows to ring an electric bell or light an electric lamp. The torpedo boat thus announces its own arrival on the scene in spite of itself, and precautions can be taken against it.

The hydrophone is at present undergoing a practical trial in the Solent, and Captain McEvoy, the inventor, es-

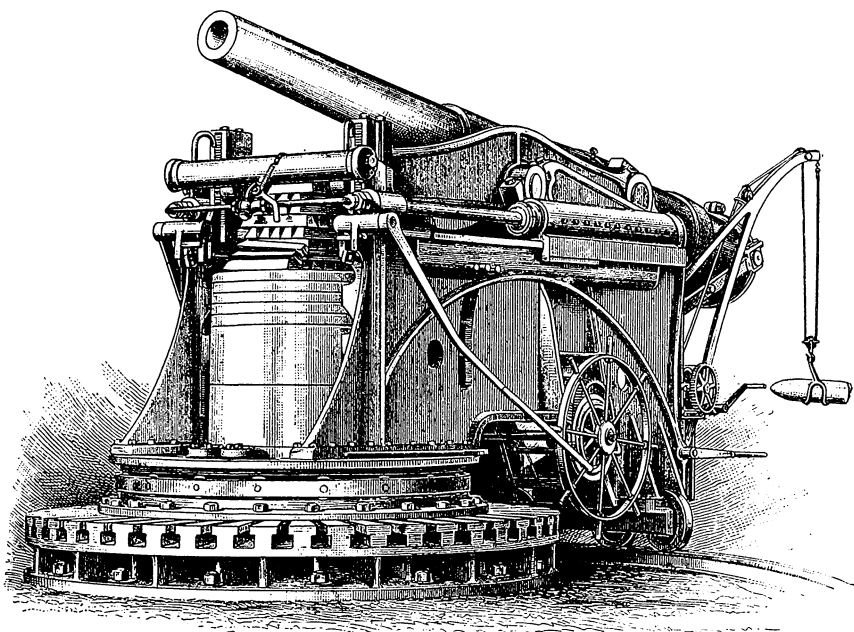


Fig. 2.—Gun in Loading Position.

THE BUFFINGTON-CROZIER DISAPPEARING GUN CARRIAGE.

hydrophone, situated on shore or on board one of the ships of the fleet. The contact is formed by a flat horizontal spring fixed at one end and loaded at the other by a heavy piece of brass, having on its upper surface a small platinum stud. A fine platinum needle kept upright by a vertical guide rests its lower end loosely on the platinum stud. The needle and the stud are connected in the electric circuit through the guide and spring, and when the needle dances on the stud the circuit is made and broken. An electric current from the ship or shore battery is always flowing through the circuit—that is to say, between the submerged bell and the indicator. Now, the propeller of a torpedo boat or of a torpedo sets up vibrations in the water, and these, reaching the submerged bell, agitate the trembling contact, so that the needle dances on the stud and interrupts the current. The consequence is that the indicator begins to work and announces the submarine disturbance. This part of the hydrophone consists essentially of an electro magnet through

timates that three of the instruments suitably placed would be sufficient to protect Portsmouth Harbor. He is now engaged in constructing a larger bell than that already submerged, in order to meet the requirements of the Government authorities. The whole apparatus is beautifully worked out, and comparatively inexpensive. Moreover, it is sufficiently sensitive to announce the passage of steamers a mile distant from the bell. Obviously such an instrument might also be used for submarine signaling, for a ship, by stopping and starting her propeller, could send a message in the Morse Code, and the shore could respond by flashing the electric lamp. In the case of another ship the response might be made by her propeller.

British Board of Trade returns for December, 1893, show that during the month imports into the United Kingdom decreased in value to the extent of \$5,343,000 as compared with those of December, 1892; while exports fell off \$9,792,000 in the same period.

The Foundrymen's Association.

The regular monthly meeting of the Foundrymen's Association was held at the Manufacturers' Club, in Philadelphia, on Wednesday, January 3. The chair was occupied by the vice-president, Thomas Devlin of Thomas Devlin & Co., Philadelphia. The minutes of the last meeting were read and approved. The Executive Committee reported that at a meeting of that body held December 8 the question of chemical analyses, referred to them at the last meeting of the association, was fully discussed, and the conclusion came to that it was best to drop the subject. The committee believed that the employment of a chemist under the pay of the association would be impossible, because the number of determinations required by the foundrymen could not be ascertained. It was suggested that in case determinations were required by any member of the association the secretary should be consulted, as he had a list of analytical chemists at his office, with the prices at which they would make determinations. It was probable that determinations would not be required unless a foundryman found himself in trouble, in which case he would want to consult a chemist and get such information as was necessary to set him right. It might be that a single analysis of the iron he was using would discover the trouble. Or it might be that the chemist would require to visit the shop and find out for himself what had led to the cause of the trouble. In the latter case it would be difficult to decide the cost until after the work had been performed. In regard to chemical determinations the committee found a great difference in the charges made by those engaged in the business. The association would furnish a list of analytical chemists to any member requiring one, but such member would have to use his own discretion in selecting a chemist to perform the services required.

In regard to tariff issues the committee believed it would be well for all foundrymen to discuss them as presented by the Wilson bill, and find out what effect such a bill would have on the foundry trade in case it was made a law. The committee were of opinion that the present conditions, under the McKinley bill, would be acceptable, and suggested that the association pass resolutions giving expression to their views on the subject and send them to the Speaker of the House of Representatives and the Senate. The foundry interests were in a very depressed condition, and the outlook for the future was not very encouraging. If Representatives could be induced to ignore the Wilson bill business would improve at once, and prosperity would come back to the condition prior to June 1 last, when the majority of foundries were running on full time.

The Price Committee had little to report. E. E. Brown of E. E. Brown & Co., representing the sash weight section of the committee, said for his section that manufacturers were running along very peaceably. There were practically no orders being placed, therefore there was nothing to quarrel about. R. A. Register of Register & Sons, Baltimore, representing the cast iron soil pipe section of the committee, said that there was nothing to report in the way of prices. In regard to his statement made at the

previous meeting of the association that pipe from the South could be freighted at lower rates than pig iron, he stated he was endeavoring to secure a bill of lading, without which it seemed impossible to do anything. As soon as he had secured one it was his intention to push the matter to the end.

Chemical Determinations.

Under the head of unfinished business, Secretary Evans referred to the subject of chemical determinations. After much inquiry, he found that the prices for determinations ranged from \$1 to \$5 for each element. He did not think the association would consider it advisable for him to read the names of the chemists making offers, but if any member was sufficiently interested to require determinations, he would be pleased to go into the matter with him and impart such information as might be required. It was thought best, he said, to close the matter by this arrangement. He mentioned that Mr. Babbitt, chemist for the Wellman Iron & Steel Company, was present and would probably make a few remarks on the subject.

Mr. Babbitt then briefly addressed the meeting. He said that in his opinion comparatively few foundrymen could afford to employ a chemist exclusively for their own work; at the same time there were very few to whom chemical analyses would not be useful if they could be obtained at sufficiently low figures. If a foundryman could order, say, eight or ten analyses per month he could probably get them for \$35. If a systematic investigation were carried on great benefit would result and money be made by the expenditure. But if a foundryman waited until he was in trouble he would read his analyses accordingly as his mind might be biased. It was only by systematic investigation that the truths or fallacies of assertions could be proved.

The Wilson Bill.

The Wilson tariff bill was then taken up for discussion in accordance with the resolution passed at the last meeting of the association. P. D. Wanner of the Mellert Foundry & Machine Company, Reading, Pa., said that in order to bring the matter in a proper manner before the meeting he would propose a resolution as follows:

Whereas, The incessant tariff agitation for a number of years and fear of lower duties on imports create a declining market in all lines of American manufacture and produce, and greatly reduced values, resulting in general stagnation of business, commercial bankruptcy and ruin, intensified by great want, misery and suffering among the people; therefore

Resolved, As the sense of this meeting, that Congress should make but moderate changes in the present tariff and do that very promptly, or abandon all further action on the subject.

Continuing, Mr. Wanner said that in life nearly everything valuable was obtained by experience, and those who were not able to learn from experience were, he considered, in a very bad way indeed. From his own experience in business, prior to and during the last six years, he was entirely satisfied that the trouble all were experiencing to-day, and had experienced during these six years, had been brought about by tariff agitation. The year 1887 was, he said, one of the most prosperous years he had ever experienced in his business; and it was not only prosperous in his business, but he believed it was a generally prosperous year all through the country—in fact, the best year, commercially

or financially, the country ever saw, with the exception of one—the year 1872. And yet, he said, in the face of that great prosperity, in the face of the happiness, joy and contentment of the people, the President issued his tariff proclamation or message to Congress on December 6, 1887. The agitation went on through the following year and the period of the Presidential election; and, he said, instead of making large profits in that year, the profits were very small, and the year was known throughout the land as one of tariff agitation. The protective principle won in that contest, but the tariff agitation went on. After reviewing the course of the tariff agitation up to the last Presidential election, Mr. Wanner said at this point manufacturers, in order to sustain themselves, commenced to cut wages; and it was there the trouble began, so far as the present Administration was concerned. They could not have lower duties without having lower wages; the two were entirely inconsistent, and yet he declared that was the element that brought about the present state of things. Matters had grown worse, and in his opinion there was no relief unless the Wilson bill was abandoned or forced through. Whatever the result might be it would have to be met, and by a reduction of wages in every direction. Speaking of protection, he said he believed in protection as a matter of principle and in home industry, American goods, American labor and American home trade. He then outlined the various tariff measures and their results and the tariff agitations since 1789. Coming back to the subject of his address, he expressed a belief that manufacturers would rather have free trade, plain, simple and solid, forced upon them, than they might in their manhood meet it as men, than have this incessant tariff agitation. As to whether they wanted free trade, he said that was a question to ask the working people of this country. A great many manufacturers to-day would rather have free trade than not, and it was his belief that there were many manufacturers who, while making every effort to run their works under the present conditions of trade, were in favor of the Wilson bill, because they wanted to crush labor. Crush labor, they argued, and strikes would be less in number. Foundrymen in England were making money, while foundrymen here were losing. In England the prices obtained for castings greatly exceeded the prices obtainable here, and the wages for labor there were from half to one-third less than were paid here. Therefore, he said, manufacturers here could very well stand a reduction in wages. Could the working people stand it?

Asked by Secretary Evans how the foundry business would be affected in the event of the passage of the Wilson bill, Mr. Wanner said that as far as cast iron pipe was concerned the tariff to-day was \$20 per ton. This was a high tariff, higher than necessary, but it was proposed to cut it down to about \$4 or \$5. Such a reduction, he thought, was too severe. He was further opposed to the bill on account of the character of duties proposed. They should be specific, and not ad valorem.

Mr. Devlin: Would there be a possibility of importing pipe even with a duty of \$4 per ton?

Mr. Wanner: Yes; pipe is sold in England, I understand, for \$15, \$16 and \$17 a ton.

Mr. Devlin: Would not that make them come higher than the price at which they are now sold here.

—Mr. Wanner: At the prices mentioned, with duty, \$4, added, and little or no freight, they could be imported.

Mr. Flagg: In your remarks, Mr. Wanner, you speak of "tariff agitation." Do you mean the effect of tariff agitation for both high and low tariff, or simply for low tariff? If that agitation were for a higher tariff would it affect business just the same? Your resolution says "tariff agitation." You do not say low tariff or high tariff. Will you give us your idea as to how tariff agitation affects business? Again, cast iron pipe is not used by corporations and business industries as largely as municipalities; and if that is the case, how would tariff agitation affect the pipe such municipalities would lay? You make a statement regarding wages. When a man gets \$6, \$5, \$4 or \$20 per week, it does not mean that the goods cost you more. The question is, rather, how much does he turn out? The experience abroad is that while the wages are lower the production is very much lower. I should like information on this point.

Mr. Wanner: The trade is not exactly confined to municipalities. There are a great many cities, railroads, private corporations and small towns using pipe, and a number of large contractors are using it. Tariff agitation lowers the price. Pass a pond on a spring evening. It is full of frogs, and they keep up a terrible racket. You get behind a tree and throw in a stone. Quiet is the immediate result. Now you have to wait some time before the boldest of the party will come out, and he is followed by another and another until after a while they are singing over the whole pond as before. It is just so in business. You are affected in the slightest way and there is trouble. Some say these panics come and go, but study the history of tariffs and you will find that changes and lower tariffs were always productive of panics. Every time the tariff was reduced a panic resulted. I defy contradiction.

The secretary then announced that Mayor Hotchkiss of Staunton, W. Va., would probably favor the meeting with a few remarks regarding the Wilson bill.

Major Hotchkiss responded to the call and made a somewhat lengthy address, in the course of which he said that people in his section of the country were up in arms against the bill, and were fighting it with persistence. He explained the effect the bill—if carried in its present shape—would have on the coal and iron ore industries, in which he was interested. In regard to iron ores, he said they were trying to use the ores from the Lake Superior region—those magnificent deposits the like of which could be found nowhere else in the world, and therefore should have internal trade, taking ore and sending back coal and coke, thus doing what Mr. Wanner had said they should all do, "foster an American spirit." American ores must be protected, he said, and the duty must be maintained on pig iron in order to resist outside competition. He also pointed out the value of resolutions setting out the opinions and ideas of organizations in every line of trade. These, he was sure, had great effect upon the action of representatives at Washington.

Secretary Evans also submitted a resolution, but as Mr. Wanner's resolution seemed to be most favored by the meeting he withdrew it. The original resolution having been seconded by Mr. Flagg it was put to the meeting and carried. Mr. Wanner then moved

that copies of the resolution be sent by the secretary to the Representatives and Senators of Pennsylvania, the chairman of the Ways and Means Committee and to such other persons as in his judgment he considered it advisable to communicate with. This motion being seconded, it was duly carried.

A vote of thanks was then passed to Major Hotchkiss for his attendance and interesting address and the meeting adjourned.

Locomotive and Car Building in 1893.

Reports now in hand from 14 locomotive building works, says the *Railroad Gazette*, give the number of locomotives built in 1893 as 1958. Returns for 1892 from 14 builders made the output for that year 2026 locomotives. But the same companies did not report for both years, and the companies from which we have no figures in 1893 are the smallest builders. We can compare the production of 14 companies for the two years, including all the larger shops. These firms built 2008 locomotives last year, and 1950 this year, a decrease of only $2\frac{1}{2}$ per cent. On the whole, this is a more favorable showing than was to be anticipated. Equipment builders are sure to be among the first of those industries depending for support upon the needs of the railroads of the country to suffer from a serious decrease in the income of the railroads. The fluctuations in the output of individual firms for the two years are in some cases very considerable. Five companies have increased their output by 160 locomotives, but nearly all of this is to be credited to one firm. Six companies have decreased their output by 228 locomotives. This loss is pretty evenly distributed among the six companies, and it is a fair indication of the falling off in the locomotive builders' business for the year. But, as in the case of nearly all other industries, these manufacturers find the serious aspect of their annual statements in the fact that the closing months show a tremendous falling off from the earlier portion of the year, and 1892 was a poorer year than 1891. Aside from the recent large order given by the Atchison, and some foreign orders, there is very little work now in progress in the contract shops.

In 1892 the car builders did a little better, comparatively, than the locomotive works, but this year they have suffered a great decrease in their business. Forty-one companies reporting in 1893 built 50,082 freight cars and 1980 passenger cars, against 98,126 freight cars and 2195 passenger cars built in 1892 by 49 companies. The returns for 1893 include all the important companies except one, which, it is known, has suffered from a greatly diminished business, at least as great in proportion as that shown in the general averages. Six companies not reported in the above figures for 1893, which built 4417 freight cars last year, have had their works closed during the whole of the present year. Four other companies report that their shops have not been running since June. The Pullman and the Wagner shops have recently been reported as working almost entirely on repairs, and the degree of general depression is emphasized by the entire closing, for the first time, of the Wason shops, at Brightwood, Mass., which are, we believe, the oldest car shops in the country. The fact that the falling off in new passenger cars built is not greater

is explained, of course, by the extra provision made early in the year by many roads for World's Fair traffic. This must have inevitably produced a shrinkage, which, it was expected, would extend throughout 1894, at least. The very large decrease in new freight cars is partly compensated by the constantly increasing percentage of cars of large capacity in the stocks of all important roads. The effect of this cannot be estimated with any accuracy, but it is important, especially on roads whose business is largely in carrying grain, hardwood lumber, coal and ore. The losses of the year have borne quite evenly on the shops as a whole. Eight companies increased their freight output by 276 cars, and six companies built 205 more passenger cars in 1893 than in the previous year. Considering decreases, we find that 34 companies have fallen off in their output by 29,949 freight cars, and 11 companies have decreased their passenger output by 346 cars. Passenger cars were built, in 1892, by 17 companies, but this year by only 14.

Early Iron Making in Connecticut

We are indebted to Elliott Littlejohn of New Haven for the following notes on an early iron making enterprise in Connecticut, which were taken from the *East Haven Register* of 1824, compiled by the Rev. Stephen Dodd of East Haven, Conn.

The transactions relative to the iron works are contained in sundry resolutions and orders. This was probably the first establishment of the kind within the present bounds of the State:

GENERAL COURT, N. H., 12th Nov., 1655.

The Towne was acquainted that there is a purpose, that an *Iron Worke* shall be set up beyond the farmes at Stoney River, which is considered will be for a publique good . . . so it issued for that time.

29th Nov., 1655.—The Governor called a meeting to consider something further about the Iron Worke.

19th May, 1656.—Upon motion of Mr. Goodyear in behalf of the Collier that comes to burn coal for the Iron Workes—he had 12 acres of land granted to him as his own, if the Iron Workes go on, and he stay three year in the worke.

14th Sept., 1657.—The Governor informed the Court that Mr. Winthrop has let out his part of the Iron Workes to two men in Boston, Capt. Clarke and Mr. Payne, as they have agreed.

This plan met with a general disapprobation.

The subject was referred to the Court and the townsman, John Cooper, to consider of it.

That reference reported thus Dec. 1, 1657:

1. It is agreed that the Iron Workes propounded to and allowed by this Towne and to which they granted several privileges was and is only for this Furnace now made in the place attended.

2. This Iron Worke and all the privileges thereunto belonging were intended for the good of New Haven and Branford.

How far these resolutions were carried into effect does not appear, but about eight years afterward Benjamin Linge prosecuted John Cooper, agent of the Iron Works, for the damage he had sustained from the water of the dam. And the people employed there, being

many of them corrupt foreigners and strangers, were so immoral and vicious as to require the frequent interposition of the civil authority.

The General Court therefore ordered that the Master shall not admit any without a certificate from persons of known reputation under the penalty of 40 shillings for every offense, and if any come to tarry there without such recommendation and permission, shall be liable to the penalty of 40 shillings, and, as a check to these increasing evils, Mathew Montthrop, Sen., was appointed conservator of the morals of the people about the Iron Works.

Of so much consequence was this establishment that after the union of New Haven with Connecticut a special was made to grant the people employed in the work, to free them from taxes for 7 years. . . . At this period, and until the business was relinquished, Thomas Clark of Boston appears to have been the principal owner; Business was carried on here both from New Haven and Branford. It continued until about 1679 or '80. Why the business was relinquished cannot now be satisfactorily ascertained. The furnace was supplied with bog ore from North Haven. It was chiefly carted, but sometimes brought from bog mine wharf by water, round to the point below the furnace; and from that circumstance the point to this day is called BOGMIRE. There was a great mortality in the village in 1679, when Ralph Russell and some other principal workmen died, which may have obstructed the operations; and probably the expense was too great to realize sufficient profits. It is a tradition in the Russell family that the death of this principal workman produced this change.

Jasper Crane and John Cooper were overseers and agents. Richard Post was founder, and John Russell was potter in furnace.

A Proposed Torpedo Ship.

It is just a little strange, says the *London Engineer*, that among all the suggestions that have been made for improvements in the construction of war vessels, no one has yet, to our knowledge, proposed the construction of a torpedo ship pure and simple. We have torpedo boats by the hundred, and torpedo boat catchers by the dozen; and it would be a difficult matter to find any war ship that cannot discharge torpedoes. But such craft have little in common with the torpedo ship proper, and it may not be uninteresting to sketch here what such a craft would be like, and to point out the advantages that she would possess for certain fighting purposes as compared with other war vessels.

Our contemporary lays down as a fundamental idea that she should carry an armament consisting wholly of torpedo tubes. She would mount no guns other than a few 3-pounders, which would serve to repel a torpedo boat attack. She would be about 2000 to 2500 tons displacement and fitted with engines and boilers capable of giving her when pushed a speed of about 20 knots. In shape above water she would somewhat resemble H.M.S. "Polyphemus." Her arched upper works would be covered with hard steel armor about 3 inches thick, which would gradually augment in thickness as it approached the water line. It has been pointed out by more than one gallant admiral that it is practically impossible to hit a ship with an elongated projectile near the water line. If the

projectile touches the surface of the sea at some little distance from its mark, that mark will never be hit, the projectile usually flying up in the air in a nearly vertical direction. As all the above water portion of the ship would be curved so that hostile shot must strike at an angle, it follows that comparatively thin plates would give complete protection. There would be no heavy guns, no barbettes, no turrets, no thwartship armor, no armored deck. The weights thus saved would be available in other ways, and a ship of the kind might indeed be plated with armor of a very satisfactory thickness from stem to stern. But she would not rely on armor alone for protection. When going into close action she would take in water ballast sufficient to sink her so far that she would present a mark almost impossible to hit. Speed would of course be sacrificed, but it would not be needed in action. Indeed, it would be objectionable, as interfering with the discharge of her torpedoes. It has often been proposed that ships should thus be partially submerged when going to fight. But H.M.S. "Turtle," as we may call her for lack of a better name, would have the principle applied in a somewhat different way from that commonly suggested. She would be fitted with valves of sufficient capacity to admit, say, 500 tons of water in about a minute, and she would be provided with centrifugal pumps, or their equivalent, which would expel the water again in a space of time not much greater. As to her armament, that, as we have said, would consist wholly of torpedo tubes, and it ought to be quite possible to fit her with as many as 12 of these. The heaviest could be carried under water, for the same reason that the old men-of-war carried their heaviest guns on the lower deck. The smaller torpedo tubes would be carried above water. When the "Turtle" had taken in her water ballast, however, these last would not be far above the level of the sea. As there would be no ammunition to be stowed there would be plenty of space to devote to torpedo machinery and air compressors, and more room would be available for engines and boilers.

It will not fail to be seen by many of our readers that no provision in the shape of deck houses, &c., has been made for the crew. Anything of the kind would be entirely out of place in a vessel which wished to be as unobtrusive as possible. It is not suggested that she should be an ocean cruiser. She would, in fact, be a coast defense ship, with more speed and more range than is usually given to ships which are classed under that somewhat ignominious title. Nevertheless, it would be quite possible to give fair living quarters to her not very numerous crew. As to deck structures—such as a military mast—she would carry nothing of the kind, and her boats would be stowed under her deck and launched over her stern, down a slide, in the way adopted in one of the great Italian ironclads. During time of peace, of course, she might be fitted either with deck houses or military masts, or anything else; but they must not form integral portions of the ship, and would all be summarily cleared out when she was really going to do some work.

A few words will suffice to explain in general terms how she could be used. At no time a conspicuous object, she might easily get near an ironclad or a squadron of ironclads without being seen. She would be driven to the utmost capacity of engines and boilers

until she got as near as was safe. Then she could take in water ballast, and so, being less than ever a good mark for guns, she would endeavor to get within striking distance of a foe. Her overwhelming power of torpedo fire would then give her a crushing superiority. The torpedo boat is dreaded, although she has but one or two chances of discharging a torpedo with success. She could not endure the fire of machine guns for a minute, but her Majesty's ship "Turtle" could lie for an hour if necessary within 400 yards of most men-of-war without much risk. The largest guns could not be depressed enough to hit her. The projectiles of the smaller pieces would glance off her skin. She might herself be torpedoed, or she might be rammed. The first is the only risk worth mentioning. The ramming ship could not escape a broadside of half a dozen torpedoes.

A very excellent feature about H. M. S. "Turtle" would be her comparative cheapness. Four such ships might be built for the price of one great ironclad. A score of objections may be urged against such a ship; twice as many may be, and have been, urged against ironclads, against cruisers, against torpedo boats, against machine guns—against everything, in short, that goes to make up a modern navy, and yet we have these things, and the end of the world has not come. H. M. S. "Turtle" is, it seems to us, worth discussing. It is worth while to work out her weights approximately. It is worth while to consider, first, how many torpedoes such a ship could carry while leaving her engine and boiler space untouched. As she is not intended to go far from a coaling port, it would not be necessary that she should carry a great deal of fuel. As to her qualities as a sea boat there need be no doubt whatever. There would be considerable resemblance between her and the type of whalebacks now being built by Messrs. Doxford, which have proved themselves good sea boats. On the whole, we think that there is more to be said in favor of H. M. S. "Turtle" than can be said against her. But it would be very easy to spoil her. We can fancy that if the gunnery man had anything to do with her he would hasten to suggest that she really must carry a 6-inch quick fire gun forward and a couple of 4-inch quick fire guns aft, with, of course, their shields, ammunition hoists, &c. If the ram man had a turn at her he would insist that she must have a heavy ram snout worked into the design; and, finally, the sailor man would doubtless cover her from end to end with deck houses, derricks, davits and boats. Let us hope that if H. M. S. "Turtle" comes to be built no one will have anything to do with her design but the naval architect, the engineer and the torpedo man.

Some time next spring there will probably be in Niagara Falls and Buffalo, N. Y., a great celebration in connection with the development of industrial matters. It is to accompany the inauguration in Buffalo of the use of the electric power developed at Niagara Falls. The plan favored is to issue letters of invitation to the President and his Cabinet, Senators and Congressmen, Governors of States, other high officials, eminent electricians and press representatives from all sections. The wire conveying the current is to be connected with some of the large manufacturing plants near the city line and the machinery set in motion by pressing a button.

Annealing Sheet Iron.—II.

Past and Present Methods of Annealing Sheet Iron and Preparing It for the Market.

BY AMBROSE BEARD, CAMBRIDGE, OHIO.

Another furnace of recent design is that illustrated in Fig. 5. This furnace works with good effect. Instead of being fired at the side, as is usually the case, it is fired at the back. Note fire chamber A. The flame passes over the bridge with a down draft to passage B. It then divides and passes along the sides of the furnace and enters the annealing chamber D, through ports C. When in operation the furnace is made air tight by means of brick lined door, E. The smoke stack F is placed between two furnaces and it serves each in common. Boxes are loaded on track H and are moved forward upon the wrought iron carrier G. The idea in using this carrier is to take a loaded box to any furnace that is empty

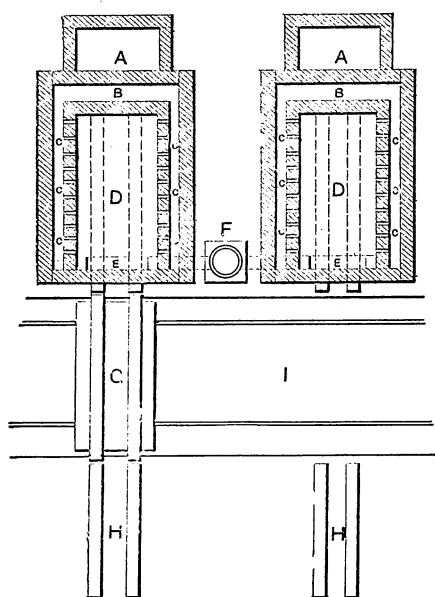


Fig. 5.—Ground Plan of Single Box Annealing Furnace Used for Sheet Iron and Black Plates for Tinning.

or vice versa to any vacant loading place. Any number of furnaces may be placed in line and operated in this manner. Carrier G is made very strong of I beams, with tracks fixed upon it of the same section as those inside the furnace and at the loading place. If it is required to move a box from one furnace to another, it is placed on the carrier G and drawn in either direction on rails laid in the sunken pit I. To insure perfect action it is desirable to allow the ends of the track plates on the carrier to overhang the sides of the pit about 6 inches, sufficient play being allowed to avoid obstruction. In following this plan all boxes or lids may be raised at one point, thus saving the expense of several hoisting devices. The boxes and their contents can be easily moved in any direction by using a strong chain attached to a fixed double purchase crab. Furnaces built in a similar manner to Fig. 5 are used extensively for annealing black plates for tinning.

Furnace Equipment.

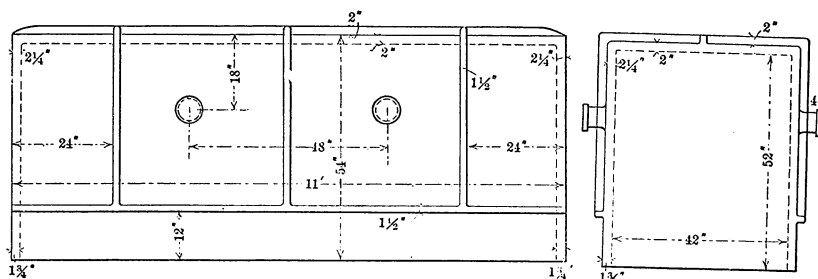
After an annealing furnace is built there is considerable outlay required before it is ready for work. In Fig. 6

designs are shown of track plates upon which the weight is moved backward and forward, the carrier upon which sheets are piled, and the box, lid, or cover, as it is variously termed, which protects the sheets during the process and prevents oxidization. The only point upon which there is any wide divergence of opinion among mill managers is the respective use of cast and wrought iron boxes. There are many claims made in favor of each, but, as a matter of fact, both kinds are used in about equal proportions. The foundry man will argue in favor of cast iron boxes and the boiler maker will urge the use of wrought iron boxes. The equipment illustrated is used in the following manner: After the track plate is properly laid, cast iron balls

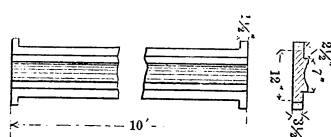
box, together with its carrier and contents, will sometimes weigh 25 tons. In double furnaces the total weight passed in and out would be 50 tons. This mass is usually moved by four men, two at the crab and two watching the balls to prevent them from locking if allowed to run loose, as they would sometimes do when the bed of the carrier is not level.

The equipment of annealing boxes illustrated in Fig. 7 is that used in annealing black plates for tinning. The method of operating is the same as described for sheet iron, except that it is on a smaller scale.

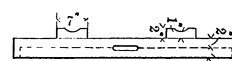
In both cases here referred to the life of an annealing box depends very much upon the treatment it receives. If it is subjected to extreme heat it will



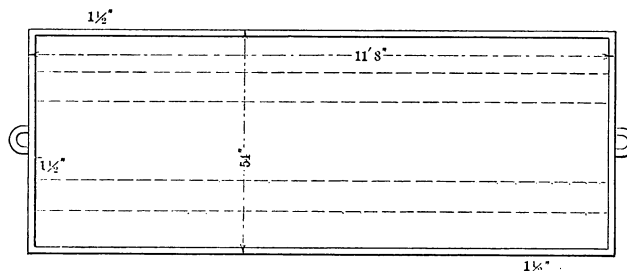
Side and End Views of Box or Lid.



Top and End Views of Track Plate.



End View of Carrier.



Top View of Carrier.

Fig. 6.—Annealing Box and Carrier.

are placed in the groove, about two feet apart, and upon them the carrier is set, the carrier having a groove on its under side corresponding with the groove in the track plate. Between these two grooves are the solid cast iron balls, made of a smaller size than the groove in the track plate so as to avoid binding. When the carrier is loaded with sheets, carefully piled so that the edges do not lap each other, the box is raised, then lowered over the pile of sheets until it rests firmly and squarely on the carrier. Air is then excluded by placing sand around the bottom of the box, and it is drawn into the furnace, where it remains for 18 hours or longer until properly annealed.

The means employed to raise and lower boxes vary. Generally a steel frame crane is used, as it can seldom get out of repair and is considered safe. Other hoists are used, which are generally constructed according to some local idea. To move the loaded boxes in and out of the furnace all that is necessary is a crab or winch. A loaded cast iron

burn, and if, while hot, it is subjected to sudden cold it will more than likely crack. In some mills boxes burn out in three to four months, if made of cast iron, but the writer has known instances when boxes have lasted as long as nine months without a crack and six months longer after a patch of wrought iron was riveted on, making a life of fifteen months before becoming useless. If proper care is exercised when a box load of finished iron leaves the furnace and it is uncovered at a time when the rays of heat can be felt at a distance of three or four feet, the sheets will present a good color. If unloaded too soon they will turn red, and if allowed to get perfectly cold the center will be gray and the edges blue. Upon this the color very much depends. If proper care is taken a uniform color is easily obtained.

Experimental Annealing.

There has been a great deal of talk indulged in by sheet mill managers regarding the possibilities of radical

changes in annealing methods, but nothing of a very encouraging nature has yet developed in this line. It seems that, for the present at least, the art has reached a stationary condition. If no other reason can be advanced to support this theory, the reason that business is not in a condition at present to warrant experimental expenditure will hold good. Within the knowledge of the writer, the only steps taken toward making important changes in the acknowledged best method were attempts to anneal sheet iron without using a cast or wrought iron cover. If this could be accomplished and results obtained equal to those of the present practice, it would be a valuable innovation; but experiments have not demonstrated that this can be done. A furnace built with a lining of fire brick tile, around which the flame passed without entering the annealing cham-

responsibility. The material may reach him in the best possible condition, but unless he takes proper care it will soon be in an unfit state for shipment. It is often the case that a shipper will allow workmen to sit upon piles of finished iron to eat their meals, spilling coffee, grease, &c., over the iron. This is a reprehensible practice. The greatest possible care should be taken to keep the sheets clean. A buyer may not say anything about it, but he will appreciate the fact that the mill sending out the neatest looking shipment must be best managed.

In marking bundles there is a great deal of difference noticed when the material reaches the warehouse of the jobber. It is a great mistake to cover the top sheet of a bundle with paint marks. Fig. 8 is a specimen of a daubed bundle. The marking on this bundle is scattered all over it. The roller's chalk

half a dozen men for a week to move the material. The shipper who watches these points is casting bread on the

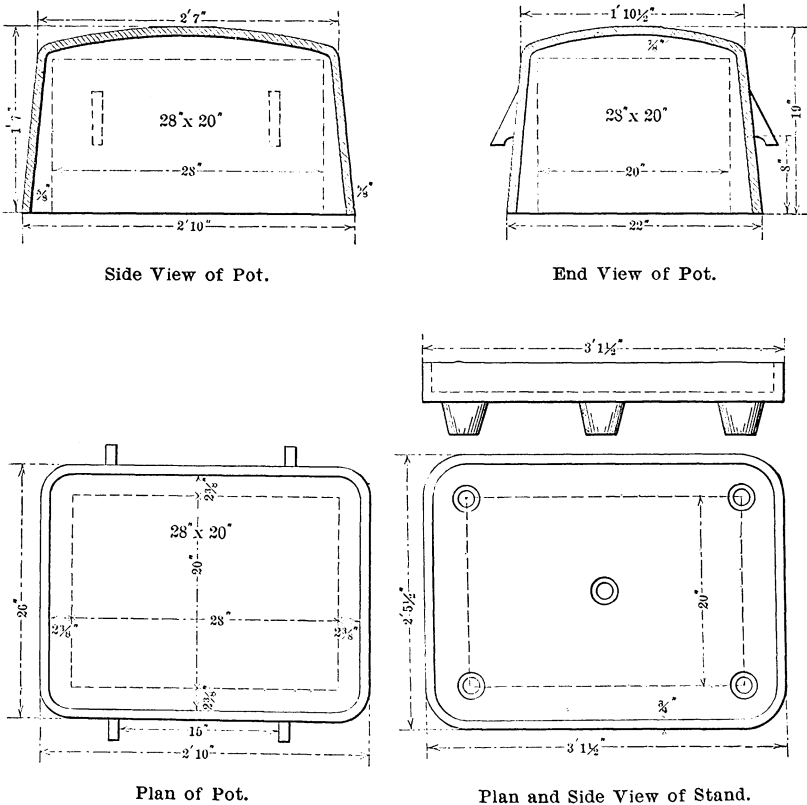


Fig. 7.—Cast Iron Annealing Pot and Stand for 28 x 20 Plates.

ber, has been tried, but the result of annealing was not of a successful character. There is really no serious cause for complaint as regards the modern method. It is cheap and effective, but slow. It is necessary to count on at least a week for filling a special order of box annealed sheet iron after the specification reaches the mill, even if the rolls are in condition to receive it, but it is safer to count on ten days. It is easy to figure on one day for rolling and three days for annealing, cooling and shipping, and this can be done, but with a book full of orders, each as urgent as the other, and exigencies to be met with, it is best to allow the full limit of time. Now, if some man can suggest or introduce a method of annealing sheets perfectly without using boxes and do the work as fast as sheets are rolled it will be worth looking into.

Pointers for Shippers.

The last man to handle sheet iron before it leaves the mill is not free from

marks and name are still left upon it, and its general appearance is unsightly. A bundle marked in this manner would carry a bad reputation for the maker wherever it went. The tinner would tell the jobber not to send any more like it, and the jobber would place his orders elsewhere. It is not necessary to scatter the marks and brands. They should be concentrated at one end of the bundle, as shown in Fig. 9.

No other marks are necessary. The D in the left hand corner represents the roller's initial, so that if any complaints are made by the consumer regarding defects the trouble can be traced. It is as necessary to exercise care in shipping sheet iron as it is in shipping any other class of goods. A shipper should keep his warehouse tidy, and stack his bundles so that he can find a required size at a moment's notice. He should keep an account of all iron received and all iron shipped, and when January 1 comes he can check his inventory in ten minutes instead of having to employ

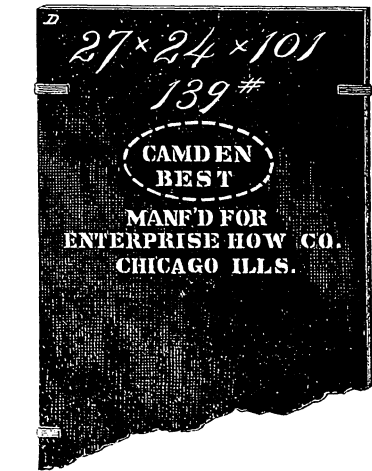


Fig. 9.—Correct Method of Marking Sheet Iron.

partment, and he cannot be too careful in applying the finishing touches.

[THE END.]

Haight & Clark, metal founders of Albany, N. Y., who recently secured a patent for a sleet and ice trolley wheel, have just received a large order from Germany for their useful invention in connection with electric motor cars. Their trolley wheel automatically removes the incrustation of ice from the trolley wires, so as to leave them clean for the transmission of the electric cur-

rent. The wheels have been tested on the Albany Railway during the past two winters.

Carnegie and the Tariff.

He Wants the Wilson Bill.

To the Editor of the Tribune:

SIR: Upon the eve of sailing I should like to say a few words to my fellow manufacturers upon the position of the tariff question.

I confess that I had some hopes that President Cleveland, with his usual good judgment, would realize the situation and decide that, owing to existing conditions, the nation, as a patient, is not in condition to undergo a surgical operation, even from the point of view of those who think that an operation is required for its permanent health. This has not been done, and the patient is to be operated upon immediately.

Whatever difference of opinion may exist as to the wisdom of this decision, all will agree that "If 'twere done when 'tis done, then 'twere well that 'twere done quickly." Every day's delay will alarm and exhaust the patient. Six months' discussion of the Wilson bill, with its varying fortunes, means six months of stagnation in business, and perhaps such a brood of failures as we have not yet seen.

Rather than encounter this I believe the Democratic party would make reasonable modifications in the Wilson bill. There are quite enough Democratic Senators who would unite with the Republicans upon the platform of moderate concessions, and the danger to the peace of the country, in my opinion, lies chiefly in the fact that some Republican Senators may refuse to co-operate with these. The question with some will naturally be: Is it good party policy?

I do not assume to speak for the manufacturers of the United States, but I know I speak for some of them when I respectfully urge that it would be infinitely better to have a moderately satisfactory tariff bill passed by the Democratic party than even a more satisfactory bill passed by the Republican party.

It must be acknowledged that a large number of the people have been led to believe that the present tariff is unjust; that it favors the few at the expense of the many. Employers and employed have been set at variance, and much ill feeling has been aroused. It is not a sufficient answer to say that this dissatisfaction is groundless. It is sufficient that it exists, and what I wish to submit to my brother manufacturers is that the first consideration should be the total obliteration of this dissatisfaction. Is it not far better for manufacturers, as a class, to have the party which has opposed the present tariff frame a tariff which shall pass as just to all interests, and for which it is responsible? Should the Democratic party pass a tariff bill, it will be its own work, and it will be estopped from attacking it as made for the few and not for the general interests of the nation. The question would be removed from politics for many years. The party who made it could not attack it, and the other party would have no disposition to do so.

I submit that it is far better to obtain a moderate Democratic tariff bill, securing us stability and permanence satisfactory to all, rather than a high

protective bill passed by the Republican party, and certain to be the object of continual political attack. We all know that uncertainty in regard to import duties is ruinous to our interests.

Partisanship is all very well, but when the question before us, as we all believe, involves the prosperity of our country, no supposed party advantage should be allowed to prevent a settlement which, if not all that could be desired, would yet be most desirable under the circumstances.

I am not without grounds for believing that it is in the power of the Republicans in the Senate to obtain the necessary modifications required in the Wilson bill to make it one such as our industrial system can adapt itself to, and prosper under. The position that the Republican party took as to its duty to support President Cleveland's silver policy I believe to be its duty to take in regard to the tariff.

What seems most desirable in the interests of manufacturers of the United States is that a tariff bill should be passed by the Democratic party, and, thereby, that the suspicion that even one "robber tariff baron" exists in the broad domain of the Republic cannot remain in the mind of the most ignorant citizen. I for one am quite ready to accept greatly reduced duties—judiciously framed—to accomplish this result. Yours very truly.

ANDREW CARNEGIE.

NEW YORK, January 3, 1894.

Republicans Do Not Want the Wilson Bill.

The *Tribune* publishes the above, not because we approve its statements or conclusions, but because Mr. Carnegie is so conspicuous a manufacturer that his attitude is of public interest.

Mr. Carnegie admits that our country is in the position of a patient about to be placed upon the operating table and that the condition of the patient is such as to forbid the use of the knife at this time. His high opinion of the leading surgeon, President Cleveland, had led him to hope that the operation would be postponed. Mr. Cleveland has failed to come up to his expectations, and now Mr. Carnegie proposes something else.

He tells us that the operation is to take place immediately, without any regard to the condition of the country (the patient), and he calls upon the manufacturers to unite in an effort to have as few of their vitals removed as possible. The advice might do if the operation was simply to cut off the tail of a dog, but when the surgeon proposes to cut the tail off close to the dog's ears, it makes little difference whether he applies the knife to the first, second or third vertebra of the neck.

Mr. Carnegie deplures a six months' discussion of the Wilson bill. So does the *Tribune*. The bill ought to be killed in half a day. The men who have started this trouble can stop it by at once abandoning the measure. Let them be wise enough to give the patient complete rest. The Republicans did not propose the bill, and have no responsibility for it, save to defeat it if they can. No manufacturer in the entire United States asked for its passage. The Republicans have done all in their power to stay the hands of these blood letting surgeons who have already caused such weakness in the patient. They propose in every way possible to defeat the proposed operation, simply because it strikes at the vitals of trade. After the heart of an animal has been taken out it matters little whether the liver and kidneys and lungs are left

untouched or not. Mr. Carnegie assures us that with a solid Republican vote in the Senate enough Democratic votes can be relied upon to modify the bill so that it will be better than it is in its present shape. He fears, however, that some Republican Senators may refuse to aid these few Democrats by voting with them. Quite likely. Why does he see danger in Republicans living up to their convictions, yet seems to have no words of condemnation for the great bulk of the Democrats, who really favor a bill even worse than the Wilson bill in its present form? The Senate may amend this bill and pass it as amended through that body. That does not make it a law. It must go through the House also as amended. But a few Democrats in the Senate can kill this bill and let that end it. What the nation most needs is the death of the entire measure. The people have already had enough of it. The unemployed are entering their protests against it from every nook and corner of this great Republic. Their living depends upon this legislation much more than does the living of Mr. Carnegie or any other man in his situation.

But Mr. Carnegie prefers even a bad bill passed by the Democrats to a good one passed by the Republicans. There is no mistaking his position in that regard. The *Tribune* differs with him absolutely. He tells us that if the Republicans will vote solid with some Democrats, and so defeat the Democratic party as a whole, the tariff question will be settled and out of politics. How settled? The Democratic party believes in one kind of a tariff law. The Republican party believes in a measure entirely different. Now, suppose some Democrats unite with the Republicans, or (to put it Mr. Carnegie's way) all the Republicans unite with some Democrats and frame a bill just a little more tolerable than the present bill, and then pass that bill through the Senate, what then? The Democratic party will simply be beaten in the Senate by the solid Republican vote, aided by certain Democrats whom they will at once proceed to denounce as "renegades." In what way will that settle anything. What question, anywhere on the face of the earth, was ever settled in that way?

Mr. Carnegie instances the vote of the Republicans on the silver bill as one worthy of imitation on the tariff bill. How so? Because Mr. Cleveland and a portion of his party were right on the silver question, and the Republicans largely voted with them only because they believed them to be right, is that any reason to urge why the Republicans should vote with the Democrats when they think the Democrats are in the wrong? The Republicans who voted for the repeal of the purchasing clause of the Sherman act so voted because they believed in the wisdom of such repeal. That surely cannot be urged as a reason why the Republicans should vote for a tariff measure in the wisdom of which they do not believe. In one case they were voting in accordance with their convictions. In the other case they would be voting against their honest convictions. Mr. Carnegie gives the real cause of his worry in his last parting shot. Some one has called him a "robber tariff baron," and has coupled other manufacturers with him in this distasteful title. He tells us that many people have been led to believe that the present tariff favors the few at the expense of the many, and he follows that state-

ment with the proposition that it matters not whether such charge is groundless or not. What a strange doctrine! A lie, then, well stuck to, is as good as the truth! One would suppose that proving an accusation to be false should count for something with an intelligent people.

Mr. Carnegie's position, stripped of its catching phrases, is simply this. "The demagogues are in the saddle; so it is best for us to let them have their own way nearly—not quite perhaps, but almost." He would have people believe that it is better to have these demagogues do something half way right, rather than that Republicans should stand by their own principles and insist upon a mode of action entirely right. Mr. Carnegie closes his letter with the statement that he is ready to accept greatly reduced duties, if by so doing he can put a stop to being called bad names. The difficulty with this, as with his whole letter, lies in the fact that Mr. Carnegie ignores both the laboring men, who must work for less wages under his proposed compromise, and his less fortunate competitors or other manufacturers who are struggling for existence with things as they are. Mr. Carnegie is very rich. He has an enormous plant, a large amount of surplus savings and he can live, as is well known in the iron trade, when the bulk of his competitors cannot survive at all. So long as he can personally endure the shock he seems very ready to let it strike others not so fortunate. The public press last week announced that the entire Carnegie works in Pennsylvania are hereafter to be run at a large reduction of wages. Here is a manufacturer, then, who arranges his own schedules so as to reduce the income of the men who do his work; and, when he sees the battle approaching, takes ship for the Old World, where he can live without regard to his operations in this country. Leaving thus the land of his adoption, where he accumulated his wealth, he sends this goodby greeting to his fellow manufacturers: "Gentlemen—You are about to submit to a surgical operation. My advice is that you mount the table cheerfully. I have carefully arranged to put myself beyond the reach of the surgeon's knife, and I assure you that I shall be able to stand the operation upon you with a good deal of equanimity. No doubt some of you are to be decapitated, and many will be ruined for life. I have a plan, however, which will see you all decently buried with the least possible exposure. My plan is a simple one. It merely requires that you should all surrender. This whole war can be stopped if you gentlemen will abandon your fortifications and beg for mercy."

Such a plan may do for General Carnegie. It differs, however, entirely from the plan adopted by other generals. It will not be adopted by the workingmen and struggling manufacturers of the United States. Mr. Carnegie may succeed in cutting down the wages of his own operatives, but the men whose wages are to be reduced all over the United States are going to ask the reason why. They seem just now to be in a fair way to find out.—*New York Tribune, January 8.*

The iron workers of the Middle and Western districts who have suffered reduction in wages during the past few months are now making an organized effort to secure a reduction in rents and prices of necessities.

The Number of Men in the Iron Works.

In the following tables the *Bulletin* of the American Iron and Steel Association gives the official census statistics of the number of hands employed and wages paid in the iron and steel industries of the United States in the census year 1890; also the official census statistics of the number of hands employed and wages paid in the mining of iron ore and coal in the United States in the calendar year 1889. The figures which are given do not include the hands employed and wages paid in the foundries, machine shops, hardware establishments, cutlery works, carwheel works, carbuilding works, forged axle works, engine and locomotive works, and many other industries which consume iron and steel. The branches of our iron and steel industries to which our figures relate embrace only the blast furnaces, rolling mills, steel works, and the few forges and bloomeries which are yet in existence. The figures relating to coal do not embrace the number of hands employed and the wages paid in the production of coke. The statistics of our coke industry for the census year have not yet been published. If published they would greatly swell the figures which we give concerning coal. Our blast furnace industry consumed over 90 per cent. of the total quantity of coke produced in the United States in 1890. The coke industry is properly a part of our coal industry. So is the quarrying of limestone for blast furnaces a part of the iron industry, but the statistics of this industry are also omitted:

Hands Employed and Wages Paid in the Iron and Steel Industries in the Year 1890.

Subjects.	Employees, except officers and clerks.	Wages paid.
Blast furnaces....	33,415	\$14,614,458
Rolling mills and steel works.....	137,295	74,460,433
Forges and bloomeries	471	199,065
Total.....	171,181	\$89,273,956

Subjects.	Officers and clerks.	Wages paid.
Number of officers..	1,407	\$3,820,848
Number of clerks...	2,918	2,641,368
Total	4,325	\$6,462,236
Grand total.....	175,506	\$95,736,192

Hands Employed and Wages Paid in the Iron Ore Industry in the Year 1889.

Subjects.	Employees.	Wages paid
Total number of employees above and below ground.....	37,707	\$13,880,108
Office force.....	520	529,043
Total	38,227	\$14,409,151

Hands Employed and Wages Paid in the Coal Industry in the Year 1889.

Subjects.	Employees.	Wages paid
Total number of employees above and below ground.....	296,623	\$106,937,058
Office force	2,936	2,193,870
Total.....	299,559	\$109,130,928

Total Number of Hands Employed and Total Wages Paid in One Year in the Iron Ore, Coal, and Iron and Steel Industries of the United States.

Subjects.	Employees.	Wages paid
Iron ore industry, 1889.....	38,227	\$14,409,151
Coal industry, 1889..	299,559	109,130,928
Iron and steel industries, 1890.....	175,506	95,736,192
Total.....	513,292	\$219,276,271

It would be interesting to show, if possible, the number of hands who are employed in the transportation by land and water of iron and steel, iron ore, coal, coke and limestone. This information is, however, not attainable. The number of men so employed and the amount of wages paid to them when the general business of the country is in a prosperous condition is very large.

The Leavenworth Bridge.

The steel railroad and wagon draw bridge, which is to be used by the Chicago, Burlington & Quincy and the Chicago, Rock Island & Pacific railroads for crossing the Missouri River at Leavenworth, Kan., was used by the Burlington road for the first time on January 1.

The bridge proper—that is, the portion constructed of steel and iron resting on masonry piers and extending across the main channel of the river—consists of one draw span 440 feet in length and two fixed spans of about 330 feet in length each, making a total length of about 1100 feet.

The spans are supported on five masonry piers, the extreme east and west piers resting on pile foundations, the three interior piers, including the pivot pier under the draw span, being built on pneumatic caisson piers extending down to rock, which is penetrated some distance by the cutting edges of the caissons.

The five piers comprising the substructure contain about 2200 yards of masonry, and the foundations under them about 3000 yards of concrete, caisson measurement, there being included in this measurement about 400,000 feet of timber and about 100 tons of iron and steel.

In the construction of the piers some magnificent blocks of stone were used, many of them weighing from 8 to 10 tons. These are from the famous Strong City Cottonwood Quarries. The nosings of the piers are of granite from St. Cloud, Minn., and cost \$80 a yard.

The cost of this substructure complete in place, together with the dike protecting the east approach, is about \$175,000. It was completed in a remarkably short time under the direction of George S. Morison of Chicago, engineer.

The steel structure occupied by the Oil Well Supply Company at the World's Fair will be moved to Zanesville, Ohio, having been purchased by the T. B. Townsend Brick & Contracting Company to replace their recently burned building.

In order to mark the two-hundredth anniversary of the founding of the Russian capital, it is proposed to hold an international exhibition on a grand scale in St. Petersburg during the year 1903.

A New Rolling Mill Engine.

The rolling mill engine designed and built by Mackintosh, Hemphill & Co. of Pittsburgh, Pa., is the outcome of a desire to combine the theoretical merits of the automatic cut off engine with the immense practical utility of the simpler form of engine and valve motion ordinarily found best suited for the rough and ready service entailed by rolling mill use. The rolling mill engineer has long desired to avail himself of the theoretical economies of the variable cut off, but has been deterred by the increased complications involved, which mean vexations innu-

operated for automatic cut off by a rotation on its axis effected by the ordinary application of the governor. By this form of construction all the objections of detachable catches, with their rapid wear, are entirely obviated, and the parts of the engine are but few more than in the ordinary type of fixed cut off, while an important feature is gained in securing the minimum of work required from the governor in operating the cut off valve, the rotative friction being almost inappreciable, in accordance with the well established law that in the case of surfaces having reciprocal motion the friction caused by rotating the surfaces is only a minute proportion of that required in the same motion if

The Western Engineers.

The twenty-sixth annual dinner of the Western Society of Engineers was held at the Sherman House, Chicago, on the evening of the 3d inst., and was attended by about 100 members of the association. At the conclusion of the dinner the Committee on Nominations reported the following officers for the ensuing year, who were unanimously elected: President, H. B. Herr; vice-presidents, D. W. Mead and H. C. Draper; secretary, Thomas Appleton; treasurer, David L. Barnes. The retiring president, Capt. Robert W. Hunt, was chairman of the evening, and

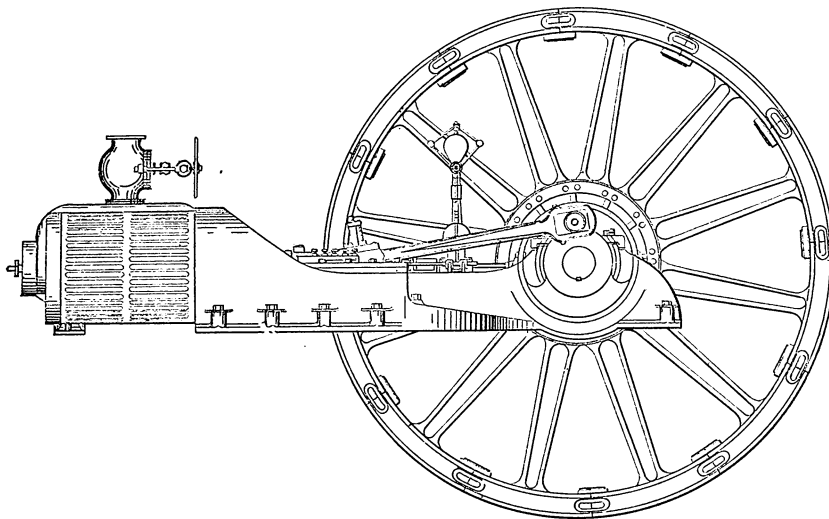


Fig. 1.—Side Elevation.

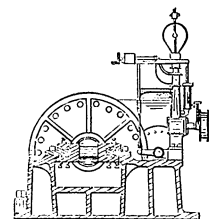


Fig. 2.—End Elevation.

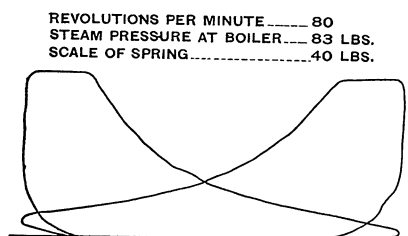


Fig. 4.—Indicator Card.

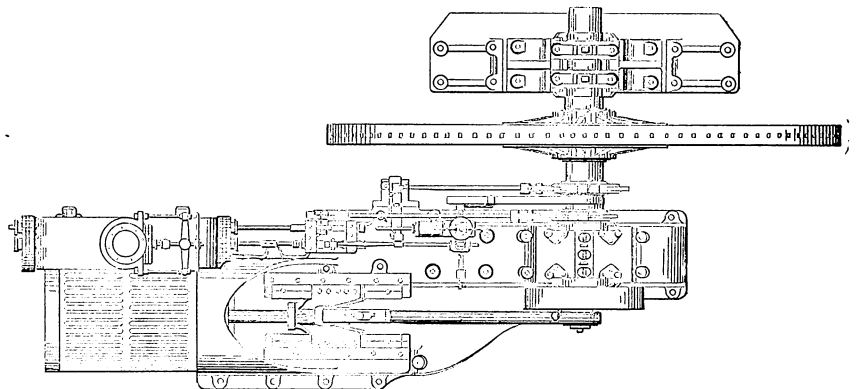


Fig. 3.—Plan.

THE MACKINTOSH-HEMPHILL ROLLING MILL ENGINE.

merable in the way of stoppages and delays, and many such engineers have settled down to the conviction that they can far better afford to spend \$100 more on the coal pile than \$1000 in reduced output, and the enormous loss involved by interruption of operations even for a few hours.

In the engine shown these two objects—economy and continuous running without stoppages from derangements—are accomplished by the adoption of the most simple form of automatic cut off that is apparent—a type long known and used with great success at the steel works in Dahlbruch, Germany, designed and constructed about ten years since by Gebrueder Klein. The main steam valve is of piston form, but is a hollow cylinder, inside of which the cut off valve plays, and is

the surfaces are at rest in other directions. The essential merits of the old type of plain valve motion engines are retained in this design, the heavy massive bed plate, with its large bearing surfaces on the foundation, securing stability on the foundation and the general inertia of all stationary parts, a feature of great value where the tremendous shocks of modern steel works practice are encountered, and the overhanging cylinder reduces all elements of disturbance to their smallest compass. The indicator diagram, Fig. 4, shows a sharpness of cut off equal to the best practice with engines of detachable valve gear. The fly wheel of the engine is 25 feet in diameter, weighs 42 tons, and the main shaft is of steel, with journals 20 inches in diameter by 36 inches in length.

opened the speechmaking by delivering an address.

President-Elect Herr, in delivering his inaugural address, traced the history of the association from its organization in 1869, and its development from a purely local affair to one embracing the engineering profession of the entire West.

This concluded the formal speeches of the evening, and until a late hour informal toasts were responded to by a large number of the members, their speeches being interspersed with vocal music by the Lotos Quartet.

Projects for international exhibitions are decidedly epidemic just now. A Cotton States International Exposition is announced for 1895, to be held at Atlanta, Ga.

The Riddell Machine for Boring Spherical Cavities.

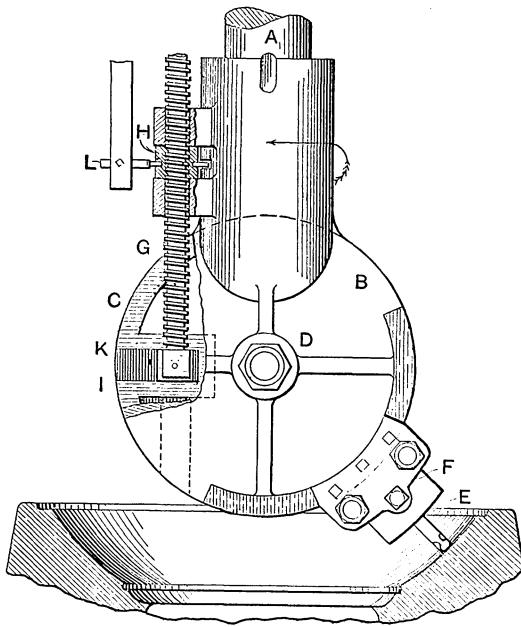
John Riddell has invented a machine designed particularly for shaping the spherical bearings in the pillow blocks which support the armature shafts of dynamos and motors, and has assigned the patent to the Thomson-Houston Electric Company of Boston. The device consists of a head adapted to be attached to the spindle of a boring or drilling machine, and having a portion of its periphery circular and lying in the plane of the axis of rotation of the spindle and head. Provision is made for adjusting the carrier to cause it to revolve in smaller or larger circles, and at lower or higher levels, respectively, and also for an automatic feeding of the carrier along the circular periphery of the head.

To the spindle A of the drilling ma-

lock nuts, so that a perfectly firm bearing is provided for the tool.

When the head is rotated, the tool E is revolved in a circle concentric with the axis of the spindle A. By adjusting the carrier along the circular periphery of the head B, the size of this circle and the level on which the tool revolves are altered, the point of the tool moving vertically in a circular path concentric with the pin D. Therefore, by adjusting the carrier, the tool can be caused to bore a spherical cavity concentric with the intersection of the pin D with the axis of the spindle.

To give the tool an automatic feed along the circular periphery it is preferred to use a screw, G, placed in a vertical slot in the head B and passing up through two ears, between which is held a nut, H, engaging with the screw. By turning the nut this screw is moved axially in the slot. A lateral projection on the head of the screw engages a



MACHINE FOR BORING SPHERICAL CAVITIES.

chine is secured by a collar the head B, which has a portion of its periphery concentric with a transverse pin, D, intersecting the axis of rotation of the head. The circular periphery of the head, therefore, lies in the plane of the axis of rotation of the head. It is preferred to make the head in the shape of a flat, circular disk, as shown, though this is not essential. A second plate, C, of the same size as the head B, is mounted upon the pin D, and revolves around it, with its periphery bearing against the head B. At the point where the plate C carries the tool E a boss or thickening is cast upon it to afford a support for the tool. A clamping piece, F, is secured to this boss or thickened part by bolts, and is provided with a flange projecting over the head B and adapted to slide on a portion of its periphery, which is dressed off to afford a working surface for the flange. To take up lost motion or wear washers are interposed, and adjusting screws are provided so that the tool carrier may rotate freely but will have no transverse motion. The tool E is held in place by the set screw shown.

Where the plate C rotates about the pin D it is provided with washers and

radial groove in the tool carrier C whereby the vertical movement of the screw causes the carrier to turn on the pin D. This lateral projection may be a simple pin, but it is preferred to use a block, K, fitted to slide in the groove, and pivotally connected with the head of the screw by a pin, I.

When an automatic feed is to be given to the carrier the nut H is provided with a number of radial arms which strike a fixed finger or tappet, L, as the head B rotates.

The lines of Pittsburgh coal shippers have not been cast in pleasant places of late. During the last six months as much as 25,000,000 bushels of coal was tied up at Pittsburgh by the low water of the river and could not be moved until last month. Then the fuel famine at Cincinnati induced such immense shipments to that point as to glut the local market and induce a coal dealers' war. Now Pittsburgh coal, which cost shippers \$2.13 a ton to land in Cincinnati, is being sold there to consumers at about \$1.87 a ton. Shippers sell it at a loss because of their imperative need of money to meet obligations.

Iron and Steel Necrology in 1893.

The death list in the iron and hardware trades in 1893 is unusually long and includes many very prominent names. Hardly a week in the entire year was passed without an obituary of some one who had earned distinction in commercial or manufacturing circles connected with the iron and steel trades. The assemblage of their names in a record for the 12 months possesses a mournful interest for the trade at large, but especially for those whose business relations with some of the deceased may have extended over a long series of years. Following is the list, arranged by months:

January.—Henry O. Bonnell, a veteran manufacturer of the Mahoning Valley, who had been engaged in the iron business at Youngstown, Ohio, since 1855. Richard T. Buck of Buck Brothers, Millbury, Mass., manufacturers of edge tools. John R. Linen, president of the Buffalo Scale Company, Buffalo, N. Y. George W. Percy of Troy, N. Y., for many years connected with the hardware trade. Richard E. Windsor of Buffalo, N. Y., a veteran hardware salesman. George W. Procter of Lewisburg, Pa., in the hardware business for 53 years, as traveling salesman for wholesale houses and then as merchant. Horace Smith of Springfield, Mass., one of the founders of the great house of Smith & Wesson, revolver manufacturers. Victor Colliau of Detroit, Mich., inventor of the Colliau cupola. James Byrne, long in the hardware trade in Albany, N. Y., but at the time of his death a resident of Chicago. Edward W. Williams of the Rochester Axle Works, Rochester, N. Y. Francis W. Truman, agricultural implement manufacturer at Owego, N. Y. Samuel Fewtrell of Joliet, Ill., an iron manufacturer of long and varied experience in different sections of the country. Henry E. Russell, president of the Russell & Erwin Mfg. Company of New Britain, Conn., and New York, and a director and officer in various other corporations in New Britain, Waterbury, Meriden, Bridgeport and Hartford. His experience in the hardware trade covered 62 years. Frederick W. Stevens, one of the first manufacturers of skates in this country, but who had latterly been living abroad for his health and died in England.

February.—William Charles, proprietor of the Charles Nut Works, Allegheny, Pa. Alexander Steel of Wichita, Kan., long identified with the Western wholesale hardware trade. William T. Carter of Philadelphia, a prominent Lehigh coal operator and Lehigh Valley pig iron manufacturer. Prof. Arthur T. Woods of Chicago, professor of mechanical and dynamic engineering in Western institutions of learning, and later the Chicago editor of the *Railroad Gazette*. Allen McKain of D. M. Osborne & Co., Auburn, N. Y. Charles Sweatt, president of the Sweatt Mfg. Company, Minneapolis, Minn. Prof. Frederick A. Genth of Philadelphia, the distinguished chemist and mineralogist. Richard Vose of Nyack, N. Y., manufacturer of car springs. Lyman Wetmore Coe, president of the Coe Brass Mfg. Company of Torrington, Conn. Levi Allen, first president of the Buffalo Steam Engine Company, Buffalo, N. Y. A. J. Sweeney, manufacturer of machinery at Wheeling, W. Va. J. W. Moore, coke operator in the Connells-ville region, Greensburg, Pa. John Humphries, Jr., secretary and treas-

urer of the Humphries Mfg. Company of Mansfield, Ohio.

March.—Charles H. Dickinson, wholesale hardware merchant at Kalamazoo, Mich. Edward Granger Gilbert, president of the Gilbert Car Mfg. Company of Troy, N. Y. Thomas Foster, wholesale hardware merchant of Utica, N. Y. George E. Howard, New York agent of the Clinton Wire Cloth Company. Irving A. Kilmer, vice-president of the Kilmer Mfg. Company, Newburg, N. Y., and a man of marked inventive genius. His death was peculiarly sad, as it was caused by swallowing carbolic acid which had been mistaken by him for medicine. John Jacob Kinzer of the Kinzer-Jones Mfg. Company, hardware manufacturers, Pittsburgh, Pa. Frederick A. Mason of Bridgeport, Conn., recently treasurer of the Bridgeport Brass Company. James C. Warr, proprietor of the Franconia Iron & Steel Works, Wareham, Mass. Francis Wedge, president of the Griffith & Wedge Company, manufacturers of machinery, Zanesville, Ohio. Gen. Hiram Berdan, inventor of the metallic cartridge, the Berdan rifle and other military devices, Washington, D. C. Othaniel Preston of the Hollow Cable Mfg. Company, Hornellsville, N. Y. W. O. Jacobs, a prominent hardware merchant at Danielsonville, Conn.

April.—Robert Patterson of Philadelphia, one of the founders of the firm of Hughes & Patterson, bar iron manufacturers. Dr. C. G. Hussey of Pittsburgh, a pioneer in the copper and steel industries of the United States. Charles Merrill, one of the oldest hardware merchants in New York. Dr. Thaddeus S. Gardner of Hollidaysburg, Pa., treasurer of the Altoona Iron Company. William W. Pitkin, an old hardware merchant at Fair Haven, Vt. Edward L. Clark, senior member of the firm of William Clark, Son & Co., proprietors of the Solar Iron & Steel Works, Pittsburgh. Peter Jones of Reading, Pa., a pioneer iron manufacturer in the Schuylkill Valley. Samuel McHose of Allentown, Pa., the first mayor of Allentown and contracting builder of nearly all the blast furnaces in the Lehigh Valley. Robert C. Clarke, treasurer of the Clarke Hardware Company, Atlanta, Ga.

May.—William H. Green, founder of the Vulcan Works, at South Chester, Pa. Henry Burkhardt, Western manager of the Eureka Cast Steel Company, at Chicago. Frederick Kroner, prominent in the Northwestern hardware trade, at La Crosse, Wis. George B. Ewing of Wilkinsburg, Pa., representative of the Ashcroft Mfg. Company at the World's Fair, killed on the Illinois Central Railroad, at Chicago. Augustus S. Bement of E. Bement & Sons, Lansing, Mich. John G. West of Reading, Pa., mechanical engineer of the Reading Iron Company and eminent in the profession. Robert M. Hamilton of the great hardware house of Baker & Hamilton, at San Francisco. James Neilson, vice president of the Andrews Brothers Company and actively interested in other manufacturing concerns, at Youngstown, Ohio. Prof. Moses G. Farmer, an electrician of international reputation, at Chicago. J. Henry Stickney of Baltimore, Md., founder of the Stickney Iron Company. Oscar Miller of Champaign, Ill., hardware merchant. George Sanderson, at the time of his decease the oldest representative of the Sheffield steel trade in New York.

June.—Joseph S. Brown of Pittsburgh, president of the Carrie Furnace

Company and for many years one of the proprietors of the Wayne Iron & Steel Works. James Morrison of Troy, N. Y., one of the founders of the firm of Morrison, Colwell & Page, at Cohoes, and president of the Syracuse Tube Company. Joshua Hendricks of the metal firm of Hendricks Brothers, New York. George Wheeler of Brooklyn, connected for over 40 years with the hardware trade of New York, representing prominent concerns as a traveling salesman. Walter McQueen, inventor of the McQueen locomotive, and vice-president of the Schenectady Locomotive Works, Schenectady, N. Y. Josiah Robbins, superintendent of the Clair Furnace Company, Limited, at Sharpsville, Pa. Rowland Sears of Lockport, N. Y., formerly a manufacturer of cutlery, but retired since 1877. Alfred Burkinshaw, of Aaron Burkinshaw's Sons, Pepperell, Mass., manufacturers of cutlery.

July.—Col. Richard T. Auchmuty, the philanthropist and founder of the New York Trade School, at his summer residence at Lenox, Mass. He also assisted in establishing the Mechanical Trade Schools of the Philadelphia Builders' Exchange. Charles F. Washburn, vice-president and secretary of the Washburn & Moen Mfg. Company of Worcester, Mass., with which he was connected during the whole of his long business career. Henry Thomas Weld of Alleghany County, Maryland, who in 1844 manufactured, at the Mount Savage Rolling Mill, the first heavy iron rails rolled in the United States. Otis T. Dana of the Dana Hardware Company, Boston, Mass. John Rollins Smith, proprietor of the Springfield Iron Works, Springfield, Mass. Prof. Werner Kummel, the leading hydraulic engineer of Germany, who died in Chicago while attending the World's Fair. Henry C. Linn, Chicago manager for the Berry Brothers Varnish Company, at Chicago.

August.—Jarvis B. Brown, president of the Anglo-American Iron & Metal Company of New York and Orange, N. J. Charles G. Otis of Brooklyn, one of the founders of the elevator manufacturing firm of Otis Brothers & Co. E. S. Moffat, president of the Lackawanna Iron & Steel Company of Scranton, Pa., who died while visiting in Scotland. Paris Haldeman, for many years president of Chickies Iron Company, at Marietta, Pa., who died in Paris, where he was residing for the benefit of his health. Hayward A. Harvey of Orange, N. J., inventor of the Harvey process for hardening steel armor plates, also inventor of the Harvey screw making machinery and president of the Harvey Steel Company. J. H. Demmler, founder of the works of the United States Iron & Tin Plate Mfg. Company, at Demmler Station, near Pittsburgh, Pa. John S. McClure, president of the Moseley Iron Bridge & Roof Company of New York. Michael Schall of York, Pa., one of the proprietors of the Wrightsville Iron Works and Columbia Rolling Mill, as well as other manufacturing enterprises.

September.—E. nest V. Clemens, a mechanical engineer of wide repute, superintendent of the De La Vergne Refrigerating Machine Company of New York. Alexander K. Rider of Walden, N. Y., inventor of the Rider hot air pumping engine and the Rider cut off engine. Frederick L. Ames of Boston, Mass., treasurer of the Oliver Ames & Sons Corporation. Samuel J. Surdam, one of the oldest hardware merchants of Chicago. William S. Wilcox, senior member of the Wilcox Hardware Com-

pany, Adrian, Mich. James M. Corbett of the Beck & Corbett Iron Company, St. Louis, Mo. Abram L. Ackerman of Titusville, Pa., who was superintendent of the Matteawan Iron Works, at Fishkill, N. Y., when that concern furnished the iron for the famous Crystal Palace in New York.

October.—John O. Hughes of Philadelphia, one of the founders of the firm of Hughes & Patterson, bar iron manufacturers. His death occurred but six months after that of his old partner, Robert Patterson. S. P. Hinkley of Chicago, agent for the Sanson Outlery Company, the Crescent Saw Company and Joseph McCoy & Co. William T. Nicholson, founder and president of the Nicholson File Company, Providence, R. I. Dennis Long, the great cast iron pipe manufacturer, of Louisville, Ky. Valentine W. Weaver of Macungie, Pa., a Lehigh Valley iron manufacturer. Benjamin S. Brown of Columbus, Ohio, president of the Brown, Hinman & Huntington Company of Columbus, also of the Austin, Tomlinson & Webster Mfg. Company and the Withington & Cooley Mfg. Company of Jackson, Mich.; also of the Iowa Farming Tool Company of Fort Madison, Iowa, and president of or director in a number of other manufacturing institutions, railroads and banks. Oliver B. North, manufacturer of saddlery and harness hardware, at New Haven, Conn. John Rothery, file manufacturer, at Matteawan, N. Y. Luther D. Emerson, president of the Emerson & Stevens Mfg. Company of Oakland, Maine.

November.—Daniel L. Dawson, president of the Gray's Ferry Foundry & Boiler Company, Philadelphia, who was not only a clever business man, but also a poet of repute and an accomplished athlete. James W. Scoville of Chicago, president of the Chicago Screw Company, director of the Elgin National Watch Company, and actively interested in other industrial and financial institutions. Julien P. Cordier, manager of the Lalance & Grosjean Mfg. Company's Chicago branch. Albert T. Converse of Norwich, Conn., iron manufacturer and hardware merchant. John P. Chatillon of New York, scale manufacturer, died in Paris, whither he had gone in search of health. George Selden of the Erie City Iron Works, Erie, Pa. Frank F. Cleveland, secretary and treasurer of the Erie Engine Works and president of the Union Iron Works of Erie, Pa. Herman A. Kroeschell of Kroeschell Bros., boiler manufacturers, Chicago. Geo. M. Rose, a metallurgist of international reputation, and at one time an assistant to Dr. Siemens, died at Chicago. Col. John L. Brown of Brown, Weddington & Co., hardware merchants, at Charlotte, N. C. Stephen Wilcox of Brooklyn, member of the firm of Babcock & Wilcox, boiler manufacturers.

December.—George H. Babcock of Plainfield, N. J., member of the firm of Babcock & Wilcox, whose death occurred within three weeks of that of his partner, Joseph D. Potts, part owner of Potts Brothers Iron Company of Pottstown, proprietor of the Chester Pipe and Tube Works, at Chester, and of the Isabella Furnace, in Chester County, and largely interested in transportation and commercial enterprises in other parts of Pennsylvania, died at Milton, Pa. Isaac C. Lewis of Meriden, Conn., president of the Meriden Britannia Company, the Miller Bros. Cutlery Company, Chapman Mfg. Company, and interested in other manufacturing as well as financial enterprises. Arthur I. Bemis of Spring-

field, Mass., member of the Bemis & Call Hardware and Tool Company. Calvin B. Doty of Steubenville, Ohio, who had been one of the pioneers in the establishment of the cut nail industry at Wheeling, W. Va., and was afterward manager of the Jefferson Nail Works, at Steubenville. William Holmes of the A. Garrison Foundry Company, Pittsburgh. A. W. Kuepen, a well known hardware merchant of Chicago. Joseph Wainwright of Medford, Mass., member of the firm of Hill, Clarke & Co. of Boston and Chicago. Nathaniel Wheeler, president of the Wheeler & Wilson Mfg. Company, Bridgeport, Conn. Chauncey H. Andrews of Youngstown, Ohio, who had for years taken a leading part in building up the business interests of the Mahoning Valley, developing coal land, building railroads, and establishing blast furnaces, rolling mills and other manufacturing enterprises. C. M. Hopkins of New York, who represented large hardware establishments as their selling agent to Southern buyers. Sidney Shepard of Sidney Shepard & Co., hardware and tinware manufacturers, Buffalo, N. Y. Henry L. Pierson of New York, head of the house of Pierson & Co., one of the oldest firms in the iron trade in this country. L. C. Boone, one of the founders of the Buckeye Engine Company of Salem, Ohio, and identified with other local business interests. Wm. J. Lloyd, formerly president of the William J. Lloyd Mfg. Company of Philadelphia, and from 1867 to 1889 senior member of the Lloyd & Supplee Hardware Company, now the Supplee Hardware Company. John B. Selheimer, a prominent hardware merchant of Lewistown, Pa., and a director in the Mann Edge Tool Company. Edward C. Lynde of Scranton, Pa., secretary of the Lackawanna Iron & Steel Company. Dr. Charles M. Cresson of Philadelphia, the eminent chemist

Iron Lighthouses.

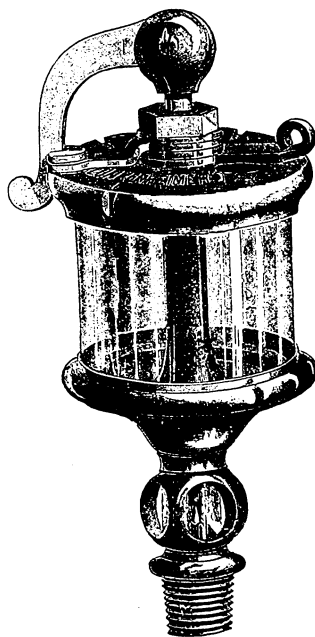
Two lighthouses which are now under construction at the works of the Tacony Iron & Metal Company, Tacony, Pa., present some interesting points in illustration of modern developments in this line. The light houses are of iron, and are being built, by order of the United States Lighthouse Board, to replace the present structures on Cape Charles and Hog Island, which are being encroached upon and slowly undermined by the sea. They will be erected further back than the present houses, on heavy foundations, and will not be subject to the same danger. The buildings are precisely alike, and will display lights of the first order. Their height to the focal plane is 175 feet and the total height 192 feet 8 inches. The diameter at the base is 53 feet, tapering to 11 feet at the lantern. The structure consists of heavy cast iron columns and struts properly braced and stayed by wrought iron tension rods and arranged in octagonal form around a central cast iron cylinder 9 feet in diameter. This cylinder is smoothly lined inside with sheet steel $\frac{1}{2}$ inch thick, and contains a cast iron spiral stairway with an elevator, worked by hand power, inside of the stairway. This is a new feature in lighthouse construction, these being the first to have such a convenience. The material and workmanship called for in the buildings are of the highest kind. All joints are planed and made water tight, and the castings are all

perfect. The first sections, 27 feet in height, of both lighthouses are completed and have been fitted together at Tacony. These have been now taken down and work is progressing on the second sections.

The Crown Index Sight Feed Oil Cup.

The Crown cup is provided with an index device for regulating the flow of oil, and an indicator arm turning on the lid to mark the notch giving the required feed. When desired the feed can be instantly turned off, and on again by replacing the index lever in the notch of the indicator arm. When the index arm is closed the lever can be left to stand up out of the notch, thus acting as an indicator to show from a distance that the feed is shut off.

Where a number of cups require different feeds, this can be accomplished with this cup without losing the original



The Crown Index Sight Feed Oil Cup.

feed by simply moving the indicator arm a few notches to the right, and when the established feed is again required it is only necessary to replace the arm in the index slide which marks the required feed. These cups are made of cast brass by the Lunkenheimer Company, of Cincinnati, Ohio, in sizes holding from $\frac{1}{4}$ to 18 ounces of oil.

A special train of 21 cars was dispatched last week to the far West containing the largest shipment of farming tools ever made in that direction. The shipment was from the Cutaway Harrow Company's works, Higganum, Conn., to Omaha, Neb. The train was decorated on its entire length, and carried one platform car, which was used for exhibition purposes.

Antwerp's forthcoming International Exhibition will include a special American building, with a floor space of 26,500 square feet, for the exhibitors of this continent. In addition to this building, the space allotted to America in the main building and in the Electricity and Machinery buildings brings up the space to be occupied by American exhibits to nearly 150,000 square feet.

Imports and Exports of Securities.

Washington C. Ford, Chief of the Bureau of Statistics, has attempted the somewhat novel task of tracing the import and export movement of American securities. On the basis of information derived from leading bankers who buy and sell American securities on foreign account, he estimates that between \$75,000,000 and \$100,000,000 in shares of different descriptions were sold on foreign account in the United States from January 1 to the beginning of August, 1893. To this sum must be added from \$15,000,000 to \$25,000,000 in various kinds of bonds, chiefly currency bonds that have been sold on European orders coming from England, Germany, Holland and Belgium. The inward movement, or, as it may be called, the import movement, of American securities thus represents an aggregate of from \$90,000,000 to \$125,000,000. To this aggregate must be added the coupons cut from American securities and sent to this country for payment, and which require either the transmission of funds to the other side or the proceeds of which were invested in American securities. The extent of this payment on coupon account cannot, Mr. Ford says, be accurately measured, but some idea may be gained of its size by the returns made by three houses of foreign correspondence, which reported an aggregate payment on this account in the six months of nearly \$8,000,000. He thinks, therefore, that it is a safe estimate to place the extent of the entire movement from June, 1892, to June, 1893, at upwards of \$200,000,000, as there is every evidence that the movement was continuous for the twelve months of the fiscal year.

Against this return of American securities, Mr. Ford says, must be set the amounts purchased on foreign account, whether for speculation or for actual investments. He says that if the eight months from January to September be divided into periods of three months it would be seen that purchases for investment account of bonds were largely confined to the first three months of the fiscal year, while purchases of shares were increased in the second quarter of the year, and in July and August the amount of purchases of both kinds of securities was increased by heavy investments, amounting, as it is estimated, to about \$20,000,000 on Dutch account, whether for investment or speculation remains to be determined. From January to June, making the same relative estimate as in the case of sales of American securities, he says that he would place the purchases at about \$40,000,000, or for the entire year at between \$90,000,000 and \$100,000,000, as the purchases must have been larger in the last six months of 1892 than in the first six months of 1893. On this showing, he points out, the balance of this movement was upward of \$100,000,000 on the side of imports of American securities.

The report of the trial board on the speed of the new Pacific built cruiser "Olympia" gives her an average of 21.686 knots on her recent speed trial in Santa Barbara channel. This is nearly $1\frac{1}{2}$ knots in excess of her contract speed, and will insure a premium of \$300,000 for the "Olympia's" San Francisco builders. The vessel will be six or seven months in hand yet before she is completely ready for service.

Iron and Steel Under the Wilson Tariff.

A. R. Whitney & Co. of New York have carefully figured out the comparative cost of iron and steel, in different forms, under the proposed Wilson tariff, taking into consideration rates of freight from foreign ports and from Pittsburgh to Pacific, Gulf and Atlantic ports. The rates of freight upon which their figuring is based are the following:

They add: The duty under the proposed Wilson bill, as you will see by the table barely covers the difference in transportation, and we call the attention of investors in railroad securities to the fact that under protection thirty-nine-fortieths of the business of this country has been done within its borders, and we fail to see what advantage free trade or half enough protection would be to them. We also call the attention of workmen to the fact that we are paying them 40 per

They make the following interesting comparisons between the rates of wages paid at American and English mills:

Comparative Wages Paid in Rolling Mills.

	American. Dollars.	English. Dollars.	English. S. D.	Per cent.
Puddling, per ton of 2240 pounds.....	3.25	1.94	7/9	40
Rolling, per ton of 2240 pounds.....	.55	.40	1/8	35
Metal stocking, per ton of 2240 pounds.....	.11½	.06	0/3	50
Muck bar, weighing, per ton of 2240 pounds.....	.10½	.08	0/4	20
Guide Mills.				
½, ¾, and up, per ton of 2240 pounds.....	2.08	1.35	3/6	40
¾, 1, and up, per ton of 2240 pounds.....	2.58	1.80	7/3	30
1, and up, per ton of 2240 pounds.....	3.06	2.25	9/2	27½
1½, and up, per ton of 2240 pounds.....	4.28	2.75	11/2	32½
Hoop Mills.				
1¼ wide, per ton.....				
1½ and 1¾ wide, per ton.....	2.30	1.85	7/6	53
1¾ and 1½ wide, per ton.....				
1 wide, per ton.....				
¾ wide, per ton.....	4.72	2.50	10/0	45
¾ wide, per ton.....	5.16	3.10	12/6	50
¾ wide, per ton.....	7.00	4.25	17/	45
¾ wide, per ton.....	10.00			
Cutting to length, extra.....	.34			
Bar Mill.				
Rolling, per ton of 2240 pounds.....	1.81	1.28	5/8	.....
Engine drivers, per day.....	1.65	1.10	4/5	.....
Firemen, per day.....	1.50			.....
Millwright, per day.....	2.50			.....
Chief engineer, per day.....	3.50			.....
Blacksmith, per day.....	2.50	1.50	6/	40
Blacksmith's helper, per day.....	1.15	.75	3/	40

Rates of Freight.

	Per 100 pounds.	Per ton, 2,240 pounds.
Average rate of freight from Pittsburgh to Pacific ports.....	\$0.48 or	\$10.75
Average rate of freight from Pittsburgh to Gulf ports.....	.40 or	8.96
Average rate of freight from Pittsburgh to Atlantic ports.....	.20 or	4.48
Actual rate of freight from Pittsburgh to Pensacola, Fla.....	.50 or	11.20
Actual rate of freight from Pittsburgh to New Orleans, La.....	.38 or	8.52
Actual rate of freight from Pittsburgh to Charleston, S. C.....	.22 or	4.92
Actual rate of freight from Pittsburgh to New York, N. Y.....	.18 or	4.03
Actual rate of freight from Pittsburgh to Boston, Mass.....	.20½ or	4.59
Rate of freight from Antwerp and Liverpool to Pacific ports.....	£0.14/ or	3.40
Rate of freight from Antwerp and Liverpool to Gulf ports.....	.10/ or	2.44
Rate of freight from Antwerp and Liverpool to Atlantic ports.....	.05/ or	1.25

They propose the following as rates which secure the home market and fully employ American workmen at fair wages: cent. more than is paid in similar mills abroad, and if the bill becomes a law there is no other way of meeting it except by further reducing wages.

	Proposed rate. Cents per pound. 8/10 and 8/10	Present duty. Cents per pound. 1 1/10 and 1 cent.
Section 135. Bar iron, rolled or hammered.....	8/10 and 8/10	1 1/10 and 1 cent.
Section 136. Round iron in coils.....	8/10	1 1/10 cent.
Section 137. Beams, girders, angles, &c.....	8/10	1 1/10 cent.
Section 138. Boiler plate.....	8/10 and 8/10	1 1/10 and 8/10 cent.
Section 140. Hoops, bands, &c.....	8/10 and 1	1 1/10 and 1 1/10 cents.
Section 140. Cotton ties.....	8/10	1 1/10 cent.
Section 141. Rails.....	8/10	1 1/10 cent.
Section 142. Sheets, black.....	8/10 and 1	1 1/10 and 1 1/10 cents.
Section 142. Sheets, galvanized.....	1 1/10 and 1 1/10	1 1/10, 1 1/10 and 2 1/10/100

Cost of Foreign and Domestic Iron and Steel Under the Wilson Tariff.

Articles of finished iron and steel.	F.o.b. foreign ports.		Proposed Wilson duty.	Foreign.						F.o.b. Pittsburgh.		American.			Present duty.	
				Adding freight to			Adding freight to									
				Atlantic ports.												
	Per ton of 2,240 pounds.	@ \$4.88.	Ad valorem. Per cent.	Per ton of 2,240 pounds.	Per ton of 2,240 pounds.	Per ton of 2,240 pounds.	Per ton of 2,240 pounds.	Per ton of 2,240 pounds.	Per pound. Cents.	Per ton of 2,240 pounds.	Per ton of 2,240 pounds.	Per ton of 2,240 pounds.	Per pound. Cents.	Per ton of 2,240 pounds.		
Beams up the 20 inches deep.....	£4. 00/0	\$19.52	35	\$6.83	\$27.60	\$28.79	\$29.75	1½	\$33.60	\$38.08	\$42.56	\$44.35	9/10	\$20.16		
Angles.....	3. 00/0	14.64	25	3.66	19.55	20.74	21.70	.....	16.50	18.90	.....	27.25	5/10	11.20
Tees.....	3. 15/0	18.30	25	4.58	24.13	25.32	26.29	.....	24.00	24.80	33.00	34.75	5/10	13.44	
Channels.....	5. 10/0	26.80	30	8.05	36.14	37.33	38.29	1 7/10	38.08	42.56	47.04	48.83	5/10	17.92		
and shapes.....	5. 00/0	24.40	30	7.32	33.97	34.16	35.12	1 7/10	29.12	33.60	38.08	39.87	5/10	17.92		
Billets.....	5. 00/0	24.40	30	7.32	33.97	34.16	35.12	1½	33.60	38.08	42.56	44.35	1	22.40		
Rails.....	5. 00/0	24.40	30	7.32	33.97	34.16	35.12	1 1/10	31.34	35.84	40.32	42.11	9/10	20.16		
Boiler plate.....	5. 05/0	25.02	30	7.68	34.55	35.74	36.70	1½	33.60	38.08	42.56	44.35	1	22.40		
Bars—1 x ½ and larger.....	5. 10/0	26.84	30	8.05	36.14	37.33	38.29	1 1/10	35.84	40.32	44.80	46.59	1 1/10	24.64		
Smaller than 1 inch wide or ¾ thick.....	5. 15/0	28.06	30	8.40	37.71	38.90	39.86	1 7/10	38.08	42.56	47.04	48.83	1 1/10	24.64		
Rounds less than 7/16.....	6. 00/0	29.28	30	8.78	39.31	40.50	41.46	1 1/10	42.56	47.04	51.52	53.31	1 1/10	29.12		
Hoops thinner than No. 10, not thinner than No. 30.....	6. 00/0	29.28	Free.	Free.	30.53	31.72	32.68	1.50	38.08	38.08	42.56	44.35	1 3/10	29.12		
Thinner than No. 20.....	6. 05/0	30.50	35	10.25	40.78	41.97	42.93	1.65	36.06	41.44	45.92	47.71	1	22.40		
Cotton ties.....	6. 15/0	32.94	35	11.53	45.72	46.91	47.87	2.00	40.32	44.80	49.28	51.07	1	22.40		
Black sheets, No. 12 G.....	7. 05/0	35.38	35	12.38	49.01	50.20	51.16	2.20	44.80	49.28	53.76	55.55	1	22.40		
Black sheets, No. 16.....	7. 15/0	37.82	35	13.24	52.31	53.50	54.46	2.30	49.28	53.76	58.24	60.03	1	22.40		
Black sheets, No. 18.....	8. 15/0	42.70	35	14.94	58.89	60.08	61.04	2.40	51.52	56.00	60.48	62.27	1 1/10	24.66		
Black sheets, No. 20.....	8. 15/0	42.70	35	14.94	58.89	60.08	61.04	2.40	51.52	56.00	60.48	62.27	1 1/10	24.66		
Black sheets, Nos. 21 to 24.....	10. 05/0	50.02	30	15.00	66.27	67.46	68.42	3.05	58.76	63.24	67.72	69.51	1 1/10	31.36		
Black sheets, Nos. 25 to 27.....	10. 15/0	52.46	30	15.84	69.55	70.74	71.70	3.30	68.32	72.80	77.28	79.07	1 1/10	30.20		
Galvanized, No. 20.....	12. 05/0	59.78	30	17.93	78.96	80.15	81.11	3.50	73.02	78.40	82.88	84.67	1 1/10	41.44		
Galvanized, No. 24.....	10. 15/0	52.46	35	15.84	69.55	70.74	71.70	3.30	73.02	78.40	82.88	84.67	2 1/10	48.16		
Galvanized, No. 26.....	10. 15/0	52.46	35	15.84	69.55	70.74	71.70	3.30	73.02	78.40	82.88	84.67	2 1/10	48.16		
Galvanized, Corr., No. 24.....	10. 15/0	52.46	35	15.84	69.55	70.74	71.70	3.30	73.02	78.40	82.88	84.67	2 1/10	48.16		

The Iron Age

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GEO. W. COPE, - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - - HARDWARE EDITOR.
JOHN S. KING, - - BUSINESS MANAGER.

The Index of *The Iron Age*, Volume LII, July-December, 1893, is now ready and may be obtained on application to David Williams, publisher, 96-102 Reade street, New York; or to 220 South Fourth street, Philadelphia; Room 509 Hamilton Building, Pittsburgh; 59 Dearborn street, Chicago; Rooms 22-24 Pickering Building, Cincinnati; Bank of Commerce Building, St. Louis; 146 Franklin street, Boston, and 312 The Cuyahoga, Cleveland.

Fluctuations in the Prices of Iron and Steel in 1893.

We print elsewhere two diagrams which show clearly the fluctuations in the prices of iron and steel for a series of years. In order that a ready comparison may be made between the course of values during the last year and the period immediately preceding it, both of our diagrams are divided into two series, one of which, based upon weekly quotations of *The Iron Age*, traces in detail the fluctuations of the past year. The upper chart deals with that group of products which is generally comprehended in the class of crude iron and steel, while the lower diagram represents the leading articles of finished iron and steel.

While, of course, all the lines relating to pig iron are based on the same series of price figures, the diagram represents another base in the case of billets, the purpose of this arrangement being to bring the lines of Bessemer pig and soft steel billets so much closer together that the eye can comfortably trace the relation between both. Of course, our diagram should not, therefore, be so interpreted that because the line representing steel billets crosses that of Bessemer pig the former has become cheaper than the latter. It simply means that relatively, though not in the exaggerated form shown, the higher form of material has declined more than the raw iron from which it is made.

Generally speaking, the diagrams show clearly how suddenly the rise which culminated early in 1890 was checked through the financial uneasiness created by the Baring failure. Since that time, after the brief reaction which followed in the summer of 1890, the decline has been almost continuous. An improving tendency in 1892 was nipped in the bud in the early winter, and since then the record has been one of almost continuous demoralization in prices.

The curves of the three principal grades of iron display one particularly interesting fact, and that is that Bessemer pig, which formerly was relatively dearer than foundry iron, has fallen at a more rapid rate than any other grade.

Our diagram relating to fluctuations in the prices of finished iron and steel represents two groups closely allied. The one comprises bar wire, wire nails and cut nails, with its own base of values in the diagram, and the other embraces beams, tank plate and bar iron. The parallelism, in a general way, of the two blue lines representing bar wire and wire nails is natural and evident. The relation between the two lines representing the two classes of nails is instructive, since it shows clearly how relatively wire has gained in price over the cut nail. The change in the base of the latter interrupts the continuity of the line, however. The period during which the beam combination possessed practical control over the market is clearly shown in the diagram. Bar iron, it will be observed, has fluctuated but little. Like all the other articles, however, it has suffered from a pronounced downward dip during the closing months last year. We trust that we may have occasion to present soon to the American iron trade a diagram whose lines show a more cheerful tendency.

The Future of the Eastern Iron Trade.

If the iron trade of Eastern and Central Pennsylvania, New York and New Jersey were called upon to endure the present depression alone, the situation would not be as grave as it actually is. All manufacturers in the district north of the Potomac and west of the Alleghanies are pondering over a far more serious question. Miserable as is the present, the future does not hold out very bright prospects in the most favorable light shed upon it. Eastern manufacturers know that the day will come when their plants will be running to full capacity, but they are beginning to fear that in times of ordinary activity they will get only a decreasing share of the business, while their Western rivals are accumulating profits which they put into new works, into improvements and enlargements. The hubbub over Southern competition in recent years diverted attention from the far more serious competition of the group of great districts west of the Alleghany Mountains, which depended upon the Lake districts for ore and the Connelsville region for coke.

One principal advantage which the Eastern manufacturers possessed for a good many years is losing its influence. That advantage was cheaper labor. It is disappearing not alone because the Amalgamated Association, which was dictating wages in the West, is losing its grip. It is fading, too, because the change from iron to steel, which partly accounts for the

first effect, operates directly also in leveling wages. Per ton of product steel is lower in labor cost than finished material of the same class made of iron. A comparison of the labor cost of converting pig iron respectively into steel billets or muck bars is so heavily in favor of the former that the increased cost of the two grades of pig iron which constitute the raw material is more than overbalanced. Furthermore the tonnage of perfect product which can be gotten out of a rolling mill is considerably greater with soft steel than it is with wrought iron, thus again leveling labor cost per unit of product East and West.

Another direction in which the tendency of costs has been against the Eastern manufacturers is that relating to fuel. Anthracite coal, once the standard fuel of Eastern iron makers, has changed little in price, and is more and more becoming too precious as a household fuel to admit of its use in manufacturing.

But unquestionably the greatest aid to Western manufacturers in crowding Eastern producers out of the markets of the former and out of common territory, and in invading and controlling the Eastern home markets, has been the cheapening of ore, in which, of course, the discovery in rapid succession of cheaply mined ores in the Menominee, the Gogebic, the Vermillion and the Mesaba ranges has been the principal factor. The movement to a lower level has been aided by the cheapening of transportation on the lakes and the lower cost of handling at terminal points.

We know that Western makers generally believe that they have better, more modern plants. No doubt that is true to a considerable extent when the whole industry East and West is compared. The West is hardly old enough to possess many concerns slowly perishing of dry rot. Still we do not think that this is a very important factor, because in every branch there are works in the Eastern territory fully equal and in some instances superior to the highest developed works, technically, in the West. Since the Eastern works of this character are suffering like, though possibly not as much as, the rest, the advantage of the West in this respect cannot be great.

We know that the center of population, and with it the center of consumption, is slowly moving westward. Yet that movement is so gradual that it cannot have entered seriously into the violent dislocation witnessed during the past two or three years.

Eastern manufacturers have endeavored to stem the tide by all means in their power. They have reduced wages until there is little chance in that direction. They have remodeled plant, improved equipment and bettered their practice. They have endeavored, with very moderate success, to enlist the co-operation of the railroads. But the latter have generally stood by with indifference, being ap-

parently eager to capture through traffic at a sacrifice, and bleeding the line trade to death in order to recoup their losses. Some of them believe that they see a way out of the dilemma by advocating the abolition of the duty on iron ore. Others have wisely abandoned the manufacture of staple goods and are devoting themselves to specialties. Some have gone into the enemy's territory, establishing branch plants in order to hold their share of the Western markets. Others finally have withdrawn voluntarily or under compulsion from the unequal struggle.

So far as Central Pennsylvania is concerned one district seems destined to hold its own in spite of all competition, and that is the district which depends chiefly upon the Cornwall ore banks for its raw material. Even today it is probable that the ore in question can be mined and prepared so cheaply that the industry based on it can live. It is true that the ore is lean, that it must be roasted to get rid of the sulphur it contains, and that it carries a considerable quantity of copper. But as long as the Cornwall ore interests pursue a far sighted policy of supporting the steel interests of that vicinity, Eastern iron makers can take care of their own markets in ordinary times.

Even during the recent period of savage, and, we believe, unreasonable and injudicious, raids into Eastern territory quite a number of Eastern works have taken a goodly share of orders. It must be acknowledged, however, that the days when Eastern mills found an outlet for a considerable part of their product in Western markets are pretty well over.

The use of steam shovels in mining soft ore, which was first, we believe, introduced in the Anniston district, and is now so popularly conspicuous a method on the Mesaba range, should be suggestive to furnace managers. There should be no serious difficulty in designing a shovel to pick up the ore from the stock house piles and deliver it to cars ready to go up the hoist. Coupled with the method of electrically conveying the cars from the stock piles to the hoists, which is practiced at Sparrow's Point, the labor of handling in the stock house should be very much reduced. The usual American method has always been sharply criticised by European furnacemen, who pride themselves on their bin system. By loading the charging barrows or cars with a steam shovel of proper size, the labor account could probably be considerably reduced.

Owing to a prevailing depression in the slate trade, the Vermont slate syndicate, at a meeting held last week, voted to dissolve the organization. The concern has been in operation for six years, and employed a large amount of labor. It controlled a majority of the slate quarries in Vermont, and the outlook for those engaged in the industry is reported to be very depressing.

PERSONAL.

Charles W. Davenport, Jones & Laughlins Building, Chicago, has made a unique and most noteworthy record for an iron broker. In the past five years, to the 1st inst., he states that he has sold a million dollars' worth of iron and steel to consumers all over the country, but mainly on the Pacific Coast, without the loss of even a cent to himself or his principals, and no probability of a loss on accounts now standing.

H. S. Smith resigned as second vice-president of the Illinois Steel Company on the 1st inst., and was succeeded by Robert Forsyth. Mr. Smith will continue to serve as director and will act in an advisory capacity, while relieved from onerous details and routine duties. He is a veteran in the service. Under his supervision the Joliet Steel Works were brought to their high state of efficiency at the time of their merging into the Illinois Steel Company. His partial retirement has been well earned. The promotion of Robert Forsyth from engineer to second vice-president will gratify his many friends throughout the trade. It is a substantial recognition of solid merit.

W. H. Jaques and Maunsel White of Bethlehem, Pa., with their guest, C. von Drebber, representative of Krupp, were thrown from a carriage last week. All sustained injuries, which fortunately were not dangerous.

Eckley B. Coxie of Drifton, Pa., president of the American Society of Mechanical Engineers, sailed for the Mediterranean last week.

The latest advices from Bethlehem report that John Fritz is improving in health.

R. A. Bole, for some years representative in Pittsburgh of the Niles Tool Works Company and the Morgan Engineering Company, Alliance, Ohio, severed his connection with those concerns on the first of the year. Mr. Bole will take a much needed rest in a trip to the Mid-Winter Fair at San Francisco, and will probably make a journey to the Hawaiian Islands.

M. Fackenthal, for several years general manager of the blast furnace plant of the Crozer Iron Company, Roanoke, Va., has resigned. He will be succeeded temporarily by D. I. Bachman, mine superintendent.

George E. Badger has resigned his position at the Edison General Company's works, Schenectady, N. Y., and has left that city to assume the management of Thomas A. Edison's mining machinery interests in New Jersey. Mr. Badger had been prominently identified with the Edison manufactory, having been night general superintendent for several years.

First Lieutenant Sidney E. Stuart, U. S. Army, has been transferred from the Bethlehem Iron Company's Works to duty at the Dupont Powder Works, Wilmington, Del. He will be succeeded at Bethlehem by Lieutenant J. Walker Benet from the Frankford Arsenal.

B. B. Neal, with F. T. Witte Hardware Company, is about starting on a trip through Eastern and a portion of Western territory, in the interest of the Mackinaw Refrigerator Company, whose goods the Witte Company handle as

agents. A pamphlet fully illustrating this line of refrigerators has recently been issued, which is very convenient for reference.

George Waterman, formerly with Albany Hardware & Iron Company, Albany, N. Y., and more recently with Boas Bros., New York, has just connected himself with C. F. Guyon Company of this city, and will represent them on the road in New York State, beginning his first trip for this company soon.

Hon George Howson, present Master Cutler of the Ancient Cutlers' Company of Sheffield, England, also managing partner in the well known cutlery house of Harrison Bros. & Howson, is expected to arrive in America late in February or early in March next.

W. L. Simonton, for some years with the Brown, Bonnell Iron Company, Youngstown, Ohio, has severed his connection with that firm and accepted a position with the Peninsular Iron Company, Detroit, Mich.

The Yearsley Harris Electric Company are a new concern lately started in business at 203 Ledger place, Philadelphia. They will make a specialty of new and second-hand electric light and railway apparatus, and the installing of new or second-hand electric systems. They have a good deal of work on hand in the way of reconstruction of old dynamos, and propose to pay especial attention to this branch of work. They have been appointed agents for the Philadelphia district for the Commercial Electric Company of Indianapolis, Ind., makers of motors and generators.

The Pittsburgh Sales Agency, J. H. Hillman, manager, 8 Wood street, Pittsburgh, Pa., are meeting with considerable success in conducting negotiations for the sale and reorganization of manufacturing plants. Already a number of sales of this character have been successfully negotiated by the above concern and others are now in progress. Included in the sales now under negotiation are some valuable coal and iron lands, which are expected to be closed up within a short time. The concern have decided to give special attention to properties of this nature and in the future will make it a specific department of their business.

In answer to the demand made by the Mahoning and Shenango Valley Iron Manufacturers' Association for a reduction in the price of boiling from \$4.75 to \$3.50, to become effective on April 1, next, the Amalgamated Association, through M. M. Garland, president, has notified the manufacturers that the association desires to restore the rate to \$5 on the above date. Should no settlement be reached by April 1, work will continue at the present rate, pending a settlement, and if it develops that no agreement can be reached, either party may give notice that negotiations shall cease, and 30 days from that date the scale then being paid shall end. It is stated that a large number of puddlers have intimated that if the proposed reduction goes into effect they will abandon puddling and endeavor to secure employment in some other capacity.

Local No.2 Foundry, Chicago



Barb Wire (galvanized) at Mill.

Steel Tank Plate, Phila.,

OBITUARY.

CHAUNCEY H. ANDREWS.

Chauncey Hummerson Andrews of Youngstown, Ohio, died December 25, aged 70 years. He was born in Vienna, Ohio, December 2, 1823. In 1842 his parents removed to Youngstown, and in 1857 he opened the Thornhill coal bank. The next year he established the firm of Andrews & Hitchcock, and in 1863 they opened the Burnet coal bank and were the first to ship coal over the Hubbard branch railroad. The same year they opened the Hubbard mines, which produced furnace coal. In 1864, in connection with his brother, W. C. Andrews, he opened the Oak Hill and Coal Run mines, on the Mitchell tree farms in Mercer County, Pa., and in connection with these he made a contract with James Wood & Sons that resulted in the establishment of four furnaces and rolling mills at Wheatland, and the calling into existence of a thriving town at that place. In 1865, in company with others, he purchased a large interest in the Western Iron Company, at Sharon, Pa., the property including a rolling mill, two furnaces and a coal bank. In connection with these works were the Brookfield Coal Company, in which, also, he was interested. About the year 1868, in connection with his two brothers, he purchased the Stout mines near Youngstown and afterward built the Hazleton furnaces, at which time he organized the firm of Andrews Bros. About the same time, in connection with William J. Hitchcock, he built the Hubbard furnace, at Hubbard Township, and in connection with W. C. Andrews and W. J. Hitchcock opened the Stewart mine under the name of the Stewart Coal Company. In 1869, in company with W. C. Andrews and the Erie Railroad Company, he completed the Niles & New Lisbon Railroad, 35 miles (12 of which had been partially built) from Niles to New Lisbon, through fine coal fields. On the completion of the road it was sold to James McHenry & Co. of London, by whom it was leased to the Atlantic & Great Western. In 1870 he, in company with his brother, W. C. Andrews, opened up four mines of bituminous coal in Columbiana County, established the Ohio Coal & Mining Company, and opened the Pennel mine, at Austintown, on the Niles & New Lisbon Road. In 1871, in connection with his brother, he opened up two mines, the Andrews Coal Company and the Holliday Coal Company, in Vienna, Trumbull County.

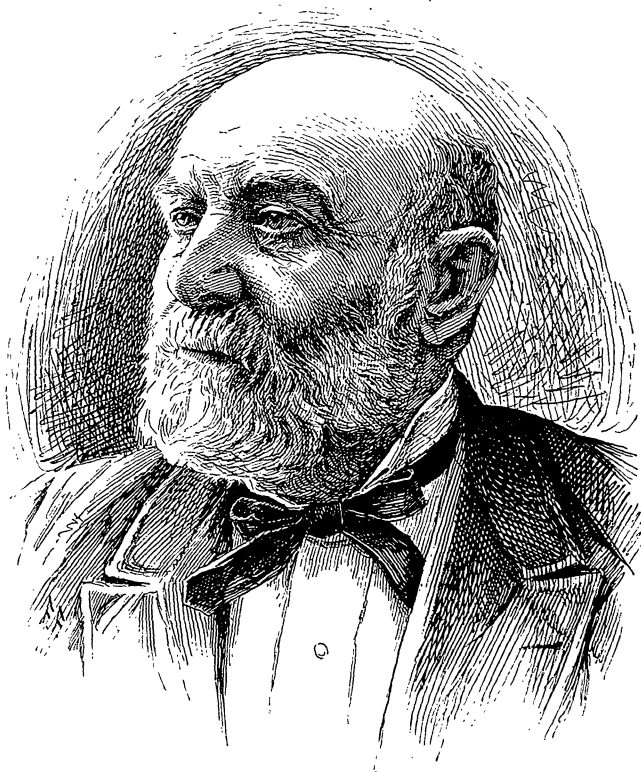
In 1872 the firm of Andrews Bros. bought the Harris & Blackford rolling mill at Niles and founded the Niles Iron Company. The same year he and Mr. Hitchcock built a furnace at Hub-

bard. In 1872 Andrews & Bros. opened the Osborn mine at Hazleton. In 1871 he helped project and carry through the Mahoning coal road, in which he owned a large interest. The same year, with his brother, W. C. and William J. Hitchcock, he opened the Foster mine and formed the Foster Coal Company. In 1876 Mr. Andrews was one of the organizers of the Pittsburgh & Lake Erie Railroad. He was president of the William Anson Wood Mower & Reaper Mfg. Company of Youngstown, which he assisted to establish in 1880. He was one of the principal stockholders in the Malleable Iron Works established at Youngstown in 1881, and was chiefly instrumental in organizing the Commercial National Bank, in 1880, of which he was president and large stockholder. He also was vice-president of the Second National Bank and one of

pany, and C. H. Andrews was elected president. This road connects with the Pittsburgh & Lake Erie at New Castle Junction and runs through to Pittsburgh by what is known as the River Division. In 1882 he obtained a charter for the Pittsburgh, Cleveland & Toledo, now the Pittsburgh & Western. He was a director and stockholder in the Hocking Valley Railroad. It was through the efforts of Mr. Andrews that the American Tube & Iron Company were induced to locate their plant in Youngstown.

A. W. KUEKEN.

A. W. Kueken, one of the most enterprising retail hardware merchants in Chicago, died of consumption on December 21. Mr. Kueken conducted a hardware store at 229 Wells street for 13 years, removing thence to 221 North Clark street, where he passed nearly seven years, until his decease. He was born in 1856 within two blocks of this store. His views with regard to conducting a hardware store were such as to invite much attention in the trade. He was a believer in making the store as attractive as possible and in endeavoring to make goods sell themselves. In fitting up his store he introduced original ideas, which were on several occasions made the subject of illustrated articles in these columns. Mr. Kueken was unmarried and bequeathed his property to his sister, Mrs. Caroline F. Paxson. His remains were cremated at Graceland Cemetery, Chicago, on the 27th, and the ashes were placed in his mother's grave in Wonder's Cemetery.



CHAUNCEY H. ANDREWS.

the chief stockholders. He was interested in the management of the savings bank which has since merged into the Mahoning National bank, he being one of the directors. Since the building of the Pittsburgh & Lake Erie Railroad he had, in connection with W. J. McCreary, W. C. Andrews and one or two others built the Montour Railroad, connecting with the Lake Erie at Montour Junction. In 1879 he established the Imperial Coal Company, who own 3000 acres of coal land in Western Pennsylvania and mine from 1000 to 1500 tons per day. In connection with Andrews Bros. & Andrews, Hitchcock & Co., he opened in Mahoning and Lawrence County, Pa., three extensive limestone quarries. In 1880 he associated himself with W. C. Andrews and W. J. McCreary and obtained the charter of the Pittsburgh, Youngstown & Chicago Railroad. They were afterward joined by W. J. Hitchcock and W. J. McKinney of Cleveland and a few others. They formed a com-

be put up during the winter and spring, and also upon the river spans, so that the erection of the bridge may immediately follow after the spring freshets. The contract for the erection of this bridge is held by the Phoenix Bridge Company of Phoenixville, Pa., and it will be remembered that last fall the bridge collapsed and fell into the river, killing a number of men. The two fallen spans have been abandoned, and the Government will remove them from the river.

The Globe Iron Company of Cleveland, Ohio, have decided to build a freight steamer and keep their workmen employed. It will be one of the largest on the lakes. Unless a buyer is found the boat will be put into commission by her builders as soon as completed.

A trolley railroad is to be built at Tokio, Japan.

Pig Iron Production Halting.

A moderate increase in the production of coke pig iron has been offset by a further decline in the production of anthracite and charcoal iron, the latter two having fallen to the lowest on record for a good many years.

On January 1 the active furnace plant, grouped according to fuel used, possessed the following weekly capacity:

Fuel.		
Anthracite.....	31	13,081
Coke.....	80	81,997
Charcoal.....	21	4,099
Total January 1.....	130	99,087
Total December 1.....	130	99,379

Decrease.....-292

The weekly product of all the furnaces on January 1 compared as follows with that of preceding periods:

	Furnaces in blast.	Capacity per week. Gross tons.
January 1, 1894.....	130	99,087
December 1, 1893.....	130	99,379
November 1.....	117	80,070
October 1.....	114	73,895
September 1.....	125	83,434
August 1.....	169	107,042
July 1.....	220	153,762
June 1.....	244	174,029
May 1.....	251	181,551
April 1.....	255	178,858
March 1.....	255	176,978
February 1.....	251	171,201
January 1.....	246	173,068
December 1, 1892.....	246	176,271
November 1.....	244	171,082
October 1.....	236	168,027
September 1.....	236	161,948
August 1.....	238	155,186
July 1.....	254	169,151
June 1.....	269	173,674
May 1.....	268	177,886
April 1.....	280	185,462
March 1.....	305	193,902
February 1.....	308	187,333
January 1.....	305	188,082
December 1, 1891.....	298	188,135

The position of the coke furnaces was as follows:

Coke Furnaces, January 1, 1894.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New York.....	7	2	1,658	5	3,200
Pennsylvania:					
Pittsburgh district.....	24	17	28,533	7	9,715
Speigel.....	2	2	1,600	0	0
Shenango Val. and Juniata and Conemaugh Valley.....	16	8	7,831	8	6,430
Speigel.....	1	0	0	1	575
Youghiogheny Valley.....	3	0	0	3	2,215
Miscellaneous.....	4	0	0	4	2,500
Maryland.....	5	1	1,462	4	4,536
West Virginia.....	1	0	0	1	250
Wheeling District.....	8	3	3,675	5	4,369
Ohio:					
Mahoning Val. Central and Northern.....	14	4	4,705	10	7,387
Hocking Val. Hanging Rock.....	11	6	5,553	5	3,751
Indiana.....	14	1	818	13	3,041
Illinois.....	14	3	908	11	2,333
Minnesota.....	2	0	0	2	412
Wisconsin.....	19	0	0	19	26,875
Missouri.....	1	0	0	1	639
Colorado.....	5	1	622	4	3,338
The South:					
Virginia.....	6	0	0	6	3,572
Kentucky.....	3	0	0	3	1,800
Alabama.....	22	8	5,046	14	7,180
Tennessee.....	7	2	710	5	2,493
Georgia.....	38	11	10,763	27	13,940
N. Carolina.....	14	5	2,720	9	3,500
Totals.....	280	80	81,997	180	124,236

As compared with previous months, the active coke furnaces make the following showing:

	Furnaces in blast.	Capacity per week.
January 1, 1894.....	80	81,997
December 1, 1893.....	72	78,241
November 1.....	57	58,820
October 1.....	52	54,081
September 1.....	54	56,976
August 1.....	84	77,907
July 1.....	122	117,072
June 1.....	140	132,079
May 1.....	146	139,788
April 1.....	145	135,488
March 1.....	145	133,579
February 1.....	140	129,396
January 1.....	138	131,731
December 1, 1892.....	136	133,160
November 1.....	133	130,673
October 1.....	128	118,895
September 1.....	128	114,638
August 1.....	131	117,984
July 1.....	140	127,433
June 1.....	145	128,852
May 1.....	147	132,313
April 1.....	152	138,116
March 1.....	163	143,490
February 1.....	167	138,268
January 1.....	163	138,611
December 1, 1891.....	162	142,747

Quite a number of furnaces have blown in. Among them are one Troy, in New York, one Lucy and one Edgar Thomson spiegel in Pittsburgh, Mabel, Raney & Berger and Spearman in the Shenango Valley, one Ashland in Kentucky, one of the furnaces of the Cleveland Iron Company, one Zanesville, and Sydney in Wisconsin. There were blown out one of the furnaces of the Maryland Steel Company, Princess in Virginia and Etowah in Alabama.

The status of the anthracite furnaces was as follows on the first of the year:

Anthracite Furnaces, January 1, 1894.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New York.....	18	3	1,194	16	5,519
New Jersey.....	11	3	1,685	8	3,150
Speigel.....	3	2	140	1	118
Pennsylvania:					
Lehigh Valley.....	44	8	2,470	36	13,840
Speigel.....	1	0	0	1	60
Schuylkill Valley.....	27	7	3,915	20	8,935
U. S. Susquehanna Valley.....	14	3	1,355	11	3,825
L. S. Susquehanna Valley.....	16	0	0	16	7,020
Speigel.....	1	0	250	0	0
Lebanon Valley.....	15	3	2,072	12	5,290
Totals.....	150	31	13,081	121	47,757

For a number of months past our records of active anthracite furnaces show the following:

	Furnaces in blast.	Capacity per week.
January 1, 1894.....	29	13,081
December 1, 1893.....	32	16,188
November 1.....	34	16,166
October 1.....	34	15,338
September 1.....	43	20,758
August 1.....	51	23,572
July 1.....	63	29,268
June 1.....	70	33,916
May 1.....	67	33,168
April 1.....	72	34,641
March 1.....	74	34,773
February 1.....	74	32,871
January 1.....	70	32,772
December 1, 1892.....	69	33,602
November 1.....	69	30,869
October 1.....	69	29,958
September 1.....	66	27,453
August 1.....	66	28,821
July 1.....	72	31,754
June 1.....	76	33,209
May 1.....	81	35,473
April 1.....	84	36,487
March 1.....	89	38,678
February 1.....	92	38,124
January 1.....	94	38,307
December 1, 1891.....	85	34,905

The current production of anthracite pig iron is the smallest on record for a good many years. The decrease in the production is chiefly due to the stoppage at the Pennsylvania Steel Company's plant. Besides this there have blown out or banked one of the Lehigh

Steel & Iron Company's furnaces, and the Lebanon Valley. One Colebrook, and one Lackawanna blew in.

The encouraging decrease in coke pig iron stocks noted in November was checked during last month, when our figures show that a slight increase took place. Charcoal stocks also increased to an appreciable extent, while nearly 11,000 tons of anthracite iron were added during December to the amount reported on hand on the first of that month.

It is interesting to note how little change has taken place in the status of the coke stocks in some of the leading districts during the past four months. In Shenango Valley, for instance, where the accumulation amounts to about 66,000 tons, this figure has not fluctuated 5000 tons during that time. In the Mahoning Valley, with its 88,000 tons of coke stocks, the figure has remained practically unchanged since October 1. The same is true of Tennessee, which reports 28,000 tons on the first of the year. Virginia, with 60,000 tons of coke iron, has gradually increased her holdings from 50,000 tons on October 1 to the present figure. On the other hand, the stocks reported by the coke producers of Alabama have fallen from 107,000 tons on October 1 to 83,500 tons on the first of the present month. The greatest fluctuations in stocks during the last half of the year have taken place among the anthracite furnaces.

The position of the charcoal furnaces was as follows:

Charcoal Furnaces, January 1, 1894.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New England.....	13	4	330	9	630
New York.....	5	1	102	4	475
Pennsylvania.....	13	2	156	11	761
Maryland.....	6	0	0	6	425
Virginia.....	13	0	0	13	827
Ohio.....	3	4	317	5	248
Kentucky.....	3	1	30	2	200
Tennessee.....	3	0	0	3	991
Georgia.....	3	1	253	2	2,280
Alabama.....	13	1	193	12	2,860
Michigan.....	20	1	1,421	16	5,064
Missouri.....	4	1	304	3	293
Wisconsin.....	4	1	733	3	1,127
Texas.....	1	0	0	1	603
Washington.....	1	0	0	1	100
Oregon.....	1	1	200	0	0
Totals.....	118	21	4,099	97	14,954

As compared with previous months, the record of active charcoal furnaces stands as follows:

	Furnaces in blast.	Capacity per week.
January 1, 1894.....	21	4,099
December 1, 1893.....	26	4,950
November 1.....	26	5,084
October 1.....	28	5,496
September 1.....	28	6,700
August 1.....	34	5,563
July 1.....	35	7,224
June 1.....	34	8,034
May 1.....	38	8,595
April 1.....	38	8,729
March 1.....	36	8,623
February 1.....	37	8,934
January 1.....	38	8,865
December 1, 1892.....	41	9,509
November 1.....	42	9,540
October 1.....	39	9,174
September 1.....	42	8,931
August 1.....	41	9,984
July 1.....	42	11,413
June 1.....	48	10,100
May 1.....	40	10,859
April 1.....	44	11,734
March 1.....	50	10,991
February 1.....	49	11,164
January 1.....	52	11,033
December 1, 1891.....	52	11,033

Work has ceased during December at the following plants: One Richmond in Massachusetts, Catocin in Maryland, Madison and Mt. Vernon in

the Hanging Rock region, Peninsular in Michigan, and No. 1 Warner in Tennessee. This leaves only Bibb in Alabama and Rome in Georgia in blast in the whole South.

We are in a position to submit figures relating to the production of some of the leading districts in the country. The output of anthracite pig iron as grouped by us was as follows for the last six months of the year:

	Gross tons.
New York.....	20,639
New Jersey.....	35,624
Schuylkill Valley.....	149,596
Lehigh Valley.....	125,502
Upper Susquehanna.....	31,009
Lower Susquehanna.....	68,196
Lebanon district.....	58,481
Total.....	489,057

Of coke iron New York furnaces produced 25,885 tons, the Juniata and Conemaugh valleys 79,372 tons, Maryland 61,564 tons, Central and Northern Ohio 74,996 tons, the Hocking Valley 12,435 tons, Illinois 65,932 tons, the Mahoning Valley 121,286 tons and Wisconsin 5289 tons. In the South Alabama produced 248,844 tons, Tennessee and Georgia 71,407 tons and Virginia, Kentucky and North Carolina 145,148 tons, a total of 465,399 tons for the Southern coke furnaces.

Stocks.

The position of stocks, sold and unsold, as reported to us January 1, was as follows, the same furnaces being represented as in former months:

Stocks:	Oct. 1.	Nov. 1.	Dec. 1.	Jan. 1.
	Tons.	Tons.	Tons.	Tons.
Anthracite pig.....	121,597	134,157	134,475	145,197
Coke pig.....	532,157	503,06	485,292	486,987
Charcoal pig.....	199,008	200,450	199,220	206,260
Totals.....	852,762	833,413	818,987	838,444

Washington News.

(From our Special Correspondent.)

WASHINGTON, D. C., January 8, 1894.

Ex-Senator Henry G. Davis of West Virginia, who is enormously interested in coal and railroads in that State, has been here again talking against the free coal provision. In conversation with some friends he said that it was remarkable to him that Professor Wilson would be so indifferent to the interests of his own section. He said that the coal workers of his district were already aroused.

The effort to get up an organized opposition to the bill in Committee of the Whole, as has been seen, has gained some encouragement since the members have been among their constituents, but no one is willing to strike out. Bourke Cockran, who was relied upon to lead these forces, is not yet disposed to fight outside of his party, and he certainly will be floored inside of it, as the situation is controlled by the Southern end, largely wedded to free trade, and the representatives of the agricultural constituencies of the West and Northwest, who are in favor of tariff reform, which means about the same thing.

The tariff battle, it is still evident, will be fought in the Senate to the extent of a general opposition to the whole bill on principle by the minority and isolated raids from policy or interest by the majority on certain items.

It has been developed in talks with members of the Senatorial majority that the spirit of fairness in the consideration of the House bill, which was so rife a few weeks ago, has been somewhat modified by the recent events in the House.

The Administration is beginning to take a hand in the contest, which will have its effect, as it did in the case of certain members of the majority when the silver repeal bill was under consideration. There have been several conferences among the majority of the Senate on their tariff policy in the Senate. Chairman Voorhees is now disposed to give the representatives of industries an opportunity to a certain degree to present their views against the rates in their line in the House bill. When this is done the bill will be reported.

Certain majority Senators who are opposed to the rates fixed on certain items like coal, iron, ore and wool if the rates are not corrected in committee will make an effort to get what they want in the Senate, but again failing there they will, they say, then vote for the bill as a whole no matter in what shape it is reported. This condition has just leaked out.

A prominent Ohioan has been here talking matters over with Brice, Gorman, Hill, Murphy and other dissatisfied Senators. He pointed out the operations of the bill in Ohio, and said that unless something were done industries would be ruined in that State. His complaint, however, was not the only one brought to their attention.

The tendency of events prospectively in the Senate is a reliance upon the minority, if the opponents cannot satisfactorily amend the bill, to protract the discussion in order to carry the question of tariff revision on such lines into the Congressional campaign of the present year and allow the people to decide the question for themselves on the choice of Representatives in the next Congress.

To such a course the majority leaders reply that such an attempt will be met by taking up the Hill proposition looking to a system of cloture. This, however, would be as debatable as the tariff bill itself, although not affording the same details for discussion. The industrial interests of the country can rely upon Senators like Allison, Aldrich and other colleagues standing by them to the end, provided public sentiment, manifested in various public methods, will stand at their back.

If the people do not show a demand for such a policy of delay the Senators will put themselves on record, do the best they can to amend the bill and let it come before the people as an adopted measure awaiting their verdict.

There are many minority Senators who think that a policy of delay would be almost as injurious to industry as the bill itself, and that the wisest course would be to give the measure as it reaches the Senate from the Committee on Finance the fullest discussion, with amendatory propositions, and then allow it to come to a vote.

The iron and steel interests will be very thoroughly presented before the Senate Committee on Finance, and among the manufacturers in this branch of industry who have been here there appears to exist a very general feeling that they will be treated as fairly as circumstances will permit.

Of the 11,262 immigrants landing in New York during the month of December, 1893, no less than 4794 are described as being of "no occupation," while 2455 were illiterates. They brought an average capital of rather less than \$15 each. How many of these will drift into the ranks of the unemployed?

MANUFACTURING.

Iron and Steel.

No. 2 Furnace of the Dunbar Furnace Company, Dunbar, Pa., will resume blast about the 15th inst. The old employees of the concern will be given employment in preference to new hands, but they will have to submit to a reduction of from 20 to 25 per cent. on the wages paid when the furnace closed down about one year ago.

The plant of the Pittsburgh Steel Casting Company at Pittsburgh, which has been idle a short time undergoing repairs, resumed operations last week to nearly full capacity.

The Sligo Rolling Mills of Philips, Nimick & Co., at Pittsburgh have resumed operations in all departments. The plate, guide and bar mills are on double turn. The steel department resumed on single turn.

The Ohio Steel Company of Youngstown, Ohio, have purchased a large battery of boilers that were on exhibition at the World's Fair, and will place it in their new Bessemer plant now being built at Youngstown.

The American Wire Company, Cleveland, Ohio, manufacturers of wire rods, have recently started up their plant, giving employment to about 600 men. Private arrangements have been made with their employees as to wages, which are entirely satisfactory to all concerned. The plant of this firm has been idle for quite a long time, but prospects for the future are exceedingly bright.

The plant of the New Castle Steel & Tin Plate Company, New Castle, Pa., is in operation to full capacity, with the exception of the tinning department, which temporarily suspended operations for lack of sufficient stock. The product of the sheet mill is large and the quality very satisfactory.

In spite of the severe business depression existing last year the business of the Central Expanded Metal Company, Pittsburgh, Pa., manufacturers of expanded metal lathing and fencing, was considerably larger during 1893 than for the preceding year. In Eastern cities the demand for Expanded metal lathing has been particularly heavy. In the West the demand is also showing gains, and the outlook in general, for the year upon which we have just entered, is promising.

In refutation of the oft repeated statement that tin plate was not, and could not, be made in this country on a commercial basis, we are permitted to give below the amount of monthly sales of tin andterne plate made during 1893 by one of the prominent concerns located in the West. In presenting these figures the fact should be noted that the entire works were closed down for about ten weeks last summer, during which time not a wheel was turned. The total sales represent only tin andterne plate, with the exception that early in 1893 a few tons of black sheets were marketed by the firm. The monthly sales of the concern in question for each month of 1893 were as follows:

January.....	\$30,843.04
February.....	40,795.60
March.....	66,239.60
April.....	49,546.77
May.....	65,017.54
June.....	82,272.67
July.....	23,193.18
August.....	14,960.62
September.....	47,639.27
October.....	46,406.68
November.....	49,264.55
December.....	47,174.54
Total.....	\$512,954.06

The above figures have been taken from the books of the firm.

A dispatch from Cumberland, Md., says: Geo. Thompson of the Cambria Iron Company, Johnstown, Pa., was in Cumberland to-day. Mr. Thompson stated he was here attending a conference between his company and the Baltimore & Ohio Railroad Company in regard to the rolling mill property in Cumberland. The Cambria Company leased the rolling mill in 1890 for a period of four years. The lease expires April 1, 1894. Since the Cambria completed their new mills in Johnstown last September they abandoned the mill here and it has been idle since. The business of the Cambria Company, their representatives say, is looking brighter, and the com-

pany now contemplate renewing their lease of the mill in Cumberland. Mr. Thompson says the Cambria will renew the lease if the Baltimore & Ohio will agree to make certain needed improvements. The matter was not settled at the conference recently held, however, and it is not definitely known what the outcome will be.

The Anniston Pipe Works, at Anniston, Ala., have passed into the hands of a newly formed company, to be known as the Anniston Pipe & Foundry Company. The officers are: F. C. Miller of Newport, Ky., president; J. K. Dimmick of Anniston, vice-president and general manager; H. B. Cooper of Anniston, secretary, and H. C. Peters of New York, treasurer. Preparations will be made to put the plant in operation at an early date.

The old Donaghmore furnace, at Lebanon, Pa., owned and formerly operated by the heirs of R. W. Coleman, is being razed to the ground.

The East Lebanon Iron Company, at Lebanon, Pa., have resumed operations in their rolling mills. The plant was destroyed by fire last April.

A Philadelphia paper says that the foremen in the departments of the Pencoyd Iron Works, Pencoyd, Philadelphia, now in operation were notified to reduce the force of men and exercise all the economy possible. The firm expect that this will reduce the number of employees about 400. The reason assigned for this action was that the iron market was dull and all the orders on hand excepting a few have been filled.

One of the blast furnaces of the Maryland Steel Company at Sparrow's Point, Md., has been blown out, so that only one stack was in blast last week, and it is probable that at this time the entire plant, consisting of four furnaces, is idle.

Last week No. 1 stack of the Allentown Rolling Mill Company's blast furnace plant at Allentown, Pa., was blown out, and No. 2 stack was being banked, with a probability of being blown out in a few days. A large force of men were laid off in the machine shop, and it looked as though the entire plant would be idle within a short time.

A report from Youngstown, Ohio, states that the plant of the Andrews Brothers Company at Haseltown will be put in operation this week. The bridge works will also resume work.

W. W. Kurtz & Sons' Valley Iron Works, near Coatesville, Pa., have been closed.

At a recent meeting of the directors of the Indiana Steel Company, Indianapolis, Ind., the following officers were elected: Jacob Christopher, president; J. C. McGettigan, vice-president; W. R. Brown, secretary, and W. V. Martin, treasurer. It was decided to resume operations as soon as the condition of the market warranted.

Ground has been broken at Middletown, Ind., for the new Irondale Rolling Mills. The buildings will be of iron and stone, fire proof, and are to be completed by the 1st of May.

The plant and machinery of the New Albany Rolling Mill Company, at New Albany, Ind., will be sold some time during the present month by order of the Union Trust Company of Indianapolis, the assignee. The town of Alexandria, Ind., some months ago made an offer of a \$100,000 bonus to induce the erection of the plant at that point, but was unable to carry out its contract.

It is stated that New York and Nashville, Tenn., capitalists have interested themselves in the Bessemer Rolling Mills, at Bessemer, Ala., and that that plant will be started up at an early date.

The property of the Basic City Mining, Manufacturing and Land Company, at Basic City, Va., has been sold to E. F. Zinna of Milwaukee, Wis., for \$20,000. Foundations were laid for a coke furnace in 1890, but work was suspended.

On April 15, 1893, the property of the Ohio & Western Coal and Iron Company was sold by James A. Hall, receiver and assignee, acting as Special Master Commissioner under the order of Judge Hoffman of the Hocking County (Ohio) Court of Common Pleas to the New York & Western Coal Company. This property consists of about 6000 acres of coal and ore lands in Athens, Hocking and Perry Counties, Ohio, on which is located the XX Furnace, at Shawnee, the Helen Furnace, at Orbiston, and the two modern furnaces A & B, at Floodwood. There are several large coal mines now operating upon this same prop-

erty and the mines and furnaces are all well equipped with the full complement of store buildings, employees' dwellings, shops, barns, &c. By this purchase the New York & Western Coal Company have acquired the largest acreage of unworked coal in one body in the Hocking Valley region, which they propose leasing for operation. The XX Furnace, at Shawnee, has been idle for some time and will probably not be again put in blast. The company offer it for sale. They propose leasing the two large stacks at Floodwood. F. K. Pendleton, 44-46 Broadway, New York City, is the president, and Wm. E. Stowe, 22 Broad street, Boston, is the secretary and treasurer of the new company. Their principal office in Ohio is located in the Wesley Block, Columbus.

We are advised that the report that the Elba Iron Works Department of the Oil Well Supply Company, at Pittsburgh, which has been idle for some months, would resume operations at an early date, is without foundation. The same statement is true regarding the plant of the Keystone Rolling Mill Company, at Pittsburgh, which has also been closed down for a long time, with no prospects of immediate resumption.

Last week at Columbus, Ohio, a charter was granted to the Hubbard Co-operative Iron Company, Hubbard, Ohio, which concern propose to engage in the manufacture and sale of iron and steel in various forms. This new concern have made arrangements to operate the plant of the Hubbard Iron Company, at Hubbard, on a co-operative basis. As soon as the charter is received, officers will be elected, and the mill will be started as soon as stock can be secured and other details satisfactorily arranged. During the first three months of operation of the plant the men will leave 50 per cent. of their wages in the general fund, to be used in creating a capital. Among those interested in the new enterprise, is William F. Bonnell, who will be general manager of the concern.

The wages of puddlers in the employ of the Clinton Iron & Steel Company have been reduced from \$4 to \$3.60 per ton.

Furnace H, at Bessemer, Pa., which has been in blast for over three years, was blown out last week for repairs.

As yet an adjustment of the loss caused by the burning of the plant of the Whittaker Iron Company, Wheeling, W. Va., has not been arranged. The 60 days in which the insurance company is by law entitled to make a settlement will expire on the 12th inst.

It is stated that, despite the dull times and business depression, both the Phoenix Iron Company and the Phoenix Bridge Company, at Phoenixville, Pa., are receiving their full share of orders. Both concerns have been unusually successful in capturing a number of good sized contracts, which insure the running of the works for some time to come.

The Garden City Wire & Spring Company, 215 South Clinton street, Chicago, have arranged to build a commodious factory in another part of the city, where they can secure the additional facilities they require.

The great steel works scheme at Ashtabula, Ohio, has come to an inglorious end. The local papers state that the promoters have written to their representatives to close the offices, as the pressure of the times prevents the raising of money to carry on the project.

The Williams Rolling Mill Company, at Muscatine, Iowa, are operating their entire works double turn. It is stated that they have orders booked covering their January and February output.

The Peoria Steel & Iron Company are running their rolling mill at Peoria, Ill., full time, with plenty of orders on hand. Their products are merchant iron and steel, for the use of manufacturers of agricultural implements, wagon manufacturers, &c.; also hoops, cotton ties, nuts and bolts, and track bolts with Champion nut locks. They have contracts which will run until next July with some of the largest agricultural implement manufacturers in the West. Their trade extends into Missouri, Iowa, Wisconsin and Nebraska. They have run night and day during the past year, and in fact it is claimed to be the only mill in the West that has been run through the financial crisis of the year. They have lately made some valuable additions to their plant in the way of machinery for finishing plow beams, ready for the maker to put into a plow, by tapering, shaping

and footing; also a saw for cutting steel. They have added two new furnaces, and are about to put in two more of the James patent.

The directors of the Indiana Steel Company met at the offices of the company in Indianapolis on December 29, and elected the following officers: President, Jacob Christopher, St. Louis; vice president, J. C. McGettigan, Indianapolis; secretary, W. R. Brown, Indianapolis; treasurer, W. V. Martin, Indianapolis. The condition of the steel market was discussed at length, and it was decided to operate the mill as soon as the times would justify.

The sale of the plant of the West Superior Iron & Steel Works was postponed from the 2d to the 16th inst. The indications point to the purchase of the property by the Rockefeller interest. Arrangements have about been consummated for the diversion of a portion of the product of the steel works into wire rods and wire nails in case the plant is started at a reasonably early day. The rumors that the Consolidated Steel & Wire Company of Chicago would operate a branch works at West Superior are unfounded. The parties contemplating the wire nail enterprise are not connected with that company.

Rhodes, Dickelman & Co., Forest, Ohio, report that they have manufactured and sold about the same quantity of iron and steel roofing during last year as they did in 1892. Their output, including a line of galvanized specialties, has reached 600 tons per year, and their business has held up well during the off year, 1893. In addition to their line of staple goods they manufacture four styles of patented standing and double seam roofing.

It is reported that the Cleveland Tin Plate Company will build black plate mills at once, and that contracts have been placed for the machinery, the lucky bidders being a well known Youngstown concern.

Owing to the death of W. S. Collins, who formerly occupied the New York territory as licensee of the Aerated Fuel Company, the business will hereafter be carried on by the Gilbert & Barker Mfg Company, 90 John street, New York City, the general agents for the aerated fuel process in the United States. J. C. Faulkner, M. E., who has been connected with the Aerated Fuel Company for the past six years as an expert in constructing furnaces and installing their oil fuel plants, will give his personal attention to all matters pertaining to this business. The company announce that they are prepared to furnish pipe, fittings, valves, oil tanks, air compressors, furnaces, burners and all supplies in this line.

The output of the bituminous coal or coke furnaces in the Hanging Rock region, Ohio, for the year 1893, was as follows: Sarah, 26,000; Belfont, 19,700; Hecla, 2815; Pinegrove, 4650; Lawrence, 8400; Mt. Vernon, 2200; Center, 2500; Olive, 2000; total tons, 68,265. This is 7000 tons less than the output in 1892, and is lower than any year since 1889, when the output was 61,800 tons.

It is reported that a sheet mill will be erected at Canton, Ohio, by a number of men formerly employed by Kirkpatrick & Co. at Leechburg, Pa. It is stated that a committee of the workmen have deposited \$5000 as a guarantee of good faith and the Canton Board of Trade has deeded them a site. The new concern will probably be known as the Canton Rolling Mill Company.

The Eureka Cast Steel Company of Chester, Pa., have completed the alterations and additions to their plant on which they have been engaged since the fire at their works last summer. Their capacity is very largely increased and they are in good shape for business. They are at present running with their usual complement of hands, but will increase it as occasion requires.

During 1893 the Belfont Iron Works Company, Ironton, Ohio, turned out 195,789 kegs of cut steel nails. The Kelly Nail & Iron Company, at the same place, turned out 139,500 kegs.

Two more sheet mills are to be added at the plant of the Scottdale Iron and Steel Company, Scottdale, Pa. This company enjoy a wide reputation for the excellent quality of their roofing sheets, and have made a specialty of this class of work during the past ten years.

The indications are that some good sized orders have been distributed among the bar, sheet and guide mills of Eastern Ohio and Western Pennsylvania, and that more are in sight. Quite a large number of mills resumed operations on Monday last after a

brief respite for inventory. Repairs were mostly made during the extended shut down of last summer and fall. It is, however, a pleasant fact to note that one or two of the mills in that section ran steadily, and had to stop during the first week of the new year to take up lost motion.

During 1893 the Eagle Iron & Steel Company, Ironton, Ohio, manufacturers of bar and sheet iron and steel, turned out 11,520 tons of bars and 1869 tons of sheets. This is a little less than the average production of this concern for the year 1892.

Phoenix Furnace of the Brown-Bonnell Iron Company, Youngstown, Ohio, has been dismantled. This was one of the oldest stacks in the Mahoning Valley, having been built in 1854, but has since been remodeled several times.

We are advised that the report printed in several Pittsburgh papers last week to the effect that Park, Brother & Co., Limited, proprietors of the Black Diamond Steel Works, in that city, would put up a large mill for the manufacture of cotton ties is entirely without foundation. The report probably arose from the fact that some time ago the firm made a purchase of some land adjacent to their plant, upon which they have since erected a 14-inch mill.

A special meeting of the stockholders of the Ohio Steel Company, Youngstown, Ohio, was held in that city last week. Action was taken on the question of the further completion of the plant, consisting of three finishing mills, buildings, shears and all equipment pertaining to the same. It was decided to proceed with the work and reach the point of completion at the earliest possible date.

On Saturday, the 6th inst., the following notices were posted at the different plants of the Riverside Iron Works, Wheeling, W. Va.: "The steel works will resume in full at the usual hour next Wednesday morning, January 10, 1894. Persons who have not been advised of the new rate of wages can procure necessary information from Manager Wiles. Any places made vacant by persons not desiring to continue in the service of the company will be given to the first competent applicants. The plate mill will resume, double turn, with mills A, B, C and D, at the usual hour next Wednesday morning, January 10, 1894. The tube works will resume, double turn, with one tong, one bell and one lap-weld furnace at the usual hour next Wednesday morning, January 10, 1894." The different works of the above firm have been closed down for about two weeks, the old wage scale having expired. A new wage scale was drawn up by the firm, and one by the employees, but both were rejected. It is believed that the employees will accept the wage scale prepared by the firm and return to work in accordance with the above notices.

The firm of Means, Kyle & Co. will rebuild their old Pine Grove Furnace, at Pine Grove, near Hanging Rock, Ohio. Frank C. Roberts & Co. of Philadelphia have been engaged as engineers, and will prepare detailed plans and specifications, secure bids, inspect materials and supervise the construction.

The Catasaqua Mfg. Company, Catasaqua, Pa., have made a reduction in wages of 10 per cent., taking effect January 1.

The McNeal Pipe & Foundry Company of Burlington, N. J., have reduced the wages of their employees from 10 to 15 per cent.

At Harrisburg, Pa., the Merchant Company, incorporated in Philadelphia, have been chartered to manufacture iron and steel, with a capital stock of \$400,000. The incorporators are: Charle Merchant, Henry W. Merchant, Leslie Chase, Dallas Sanders and J. Estelle Merchant, all of Philadelphia.

Machinery.

The Wainwright Mfg. Company of Boston have transferred to the Taunton Locomotive Mfg. Company, Taunton, Mass., the right to sell and manufacture the goods which they have supplied for several years past. For four years the Taunton Company have manufactured all of their heaters, condensers, expansion joints and corrugated gaskets under a manufacturing contract. They are thus thoroughly acquainted with the various requirements of customers and with the technical and engi-

neering features of the business. The present agents will continue the sale of the goods on behalf of the Taunton Company.

The American Brass Works at Porter Station, Ind., are nearing completion, and work in the foundry was expected to commence this week.

Frank H. Savill and William Sullivan will establish machine shops next spring at Canton, Ill. Some of the machinery has been contracted for, and the erection of the building has been begun.

The Great Northern Railroad is building a large repair shop at Spokane, Wash. The installation of machinery began on the 26th ult., and it is expected that regular work will begin about February 1. From 350 to 400 mechanics will be employed when the shop is running up to its capacity.

The Hassell-Talcott Foundry & Iron Company have the only foundry in El Paso County, Col. The company consists of W. W. Hassell, president and general manager; A. B. Talcott, vice-president; E. Harris Jewett, treasurer, and C. B. Alling, secretary. Their works and foundry are located at Colorado City, and offices at Colorado Springs. They make a specialty of mining machinery, but also undertake a general line of plain and ornamental iron work, brass work and electroplating. Their foundry was erected within the past year.

Davies & Thomas, founders and machinists, Catasaqua, Pa., have secured the contract for the castings for the Columbus and Seventh avenue cable road in New York City.

The J. A. Fay & Egan, Company, Cincinnati, Ohio, have recently received a contract for a complete outfit of wood working machinery for the extensive car works recently erected at Depew, N. Y. The order for the foundry supplies for the same works, amounting to several car loads, was taken by the S. Obermayer Company, also of Cincinnati.

The Lodge & Davis Machine Tool Company, Cincinnati, Ohio, recently filled an extensive order for machine tools for San Francisco. This firm have had a large number of inquiries during the past two months, which have yielded a fair proportion of orders.

Seaman, Sleeth & Black, proprietors of the Phoenix Roll Works, Pittsburgh, Pa., have recently shipped one of J. S. Seaman's patent rounding machines, weighing 10 tons, to the Sandvik Steel Works, Sweden. During a visit to the Columbian Exposition last summer a representative of the Sandvik Steel Company stopped for a few days in Pittsburgh, and while making a tour of the industrial establishments in and about that city saw several of these machines in operation, and on his return home reported to his firm what he had seen of the working of the machines, which resulted in the above order being placed. Seaman, Sleeth & Black will soon place upon the market chilled rolls, cast by a new process, by which they expect to overcome to a large extent the heavy breakage of plate and chilled rolls. They are now preparing to manufacture rolls under this process on a large scale.

Last summer the Western Automatic Machine Screw Company, Elyria, Ohio, manufacturers of iron and steel set screws, constructed a large addition to their plant, but when the business depression set in the firm concluded not to put in as much new machinery as would have been done had the favorable condition of business existing prior to March 1, 1893, continued. For some time certain manufacturers using the product of the above firm delayed their purchases until quite late in the season, and this necessitated the turning out of a large amount of goods on short notice. As the outlook for business in the near future is somewhat unfavorable, the firm have decided to run a small portion of their works 24 hours per day in order to meet the requirements of their customers promptly, the balance of their plant being in operation only eight hours per day. The main factory of the Western Automatic Machine Screw Company is 50 x 100 feet, with an L 40 x 98 feet, four stories; engine house, 16 x 36 feet; boiler house, 34 x 86 feet; case hardening house, 40 x 42 feet; blacksmith shop, 23 x 70 feet, one story; machine shop, 35 x 86 feet; office and warehouse, 35 x 105 feet, two stories high, all substantial brick structures and equipped with the latest and best machinery and appliances. This entire plant is devoted to the manufacture of screws and kindred ar-

ticles such as enter into the construction of instruments of precision, embracing printing presses, engines, electric appliances, watches, clocks, musical instruments, optical work, guns, pistols, sewing machines, locks, shears, bicycles, machine shop supplies and all the finer classes of small hardware made from iron, steel or brass.

C. H. Hudson, general manager of the East Tennessee, Virginia & Georgia Railway, at Knoxville, reports to the Buffalo Forge Company of Buffalo that their heating system, introduced into the office building, is working well. The Buffalo Forge Company have received the contract for heating the paint shop and wood working shop of the same road, each building being 337 x 90 x 33 feet. This will involve the use of a fan capable of delivering 82,000 cubic feet per minute.

About 50 boiler makers at the Franklin Iron Works, Troy, N. Y., went on strike on account of a 10 per cent. reduction in wages.

The Wilson Machine Company have started up their works at Columbia, Pa., after an idleness of several weeks.

Spaulding & Metcalf, dealers in engineers' and steam fitters' supplies, Philadelphia, have found it necessary to secure larger quarters for their growing business, and have therefore changed their location to 532 Arch street, in that city. They will continue to push the sales of Metropolitan injectors, Ellis lubricators, Weatherhead & Thompson's leather belting, Messenger check valves and the products of the Campbell Electrical Supply Company of Boston.

James K. Wright of Newburg, N. Y., has been appointed receiver of the Wright Steam Engine Works, in that city, and William Wright has made an assignment to James K. Wright for the benefit of his creditors. The assignment of William Wright became necessary because of the indorsement by him of notes of the company. The building of the extensive plant of Mr. Wright, with the great loss of business caused by the financial depression, and the inability to longer provide for maturing bills and notes, compelled this course. Nearly all the capital stock of the company is held by William Wright. The indebtedness of the company, exclusive of a mortgage of \$40,000 on the real estate, is about \$83,000.

At Pittsburgh last week George Westinghouse acquired absolute control of the Westinghouse Machine Company of that city by purchasing outright the entire stock held by Ralph Baggeley. The transaction involved 2000 shares and the price approximated \$50 a share, or \$100,000. The Westinghouse Machine Company were organized in Pittsburgh in 1881 with a capital of \$500,000, \$350,000 being common and \$150,000 preferred stock. The par value of the shares is \$50. The stock has seldom appeared on the market, for the reason that it is in the hands of a comparatively small number of shareholders. Dividends have been earned and declared recently without public notice, and at the annual meeting to be held shortly another dividend disbursement will be made. Mr. Westinghouse has always held a controlling interest in the company, and his holdings now amount to about nine-tenths of the 10,000 shares. Ralph Baggeley has been identified with the company since their inception in an official capacity as treasurer and general manager. No special reason was given by Mr. Baggeley for withdrawing from the company, except that his duties as president of the United States Glass Company made it necessary for him to give that company's affairs his undivided attention. It is believed that Mr. Baggeley will become a large owner of the shares of the glass company. The Westinghouse Machine Company are engaged in the manufacture of high class compound engines, several of which were used for driving the big generators used for lighting the buildings and grounds of the World's Fair. The company ship engines to all parts of the country, and their business is said to have increased to such an extent that the present manufacturing plant is running to its fullest capacity.

The Robingson Mfg. Company have been organized at New Brighton, Pa., for the purpose of manufacturing bauxite bronze, an invention of C. C. Robingson. Strong claims are made for the merits of this bronze, and it is stated that in a recent test the results attained were highly satisfactory. At a meeting of the stockholders of the new concern held last week the following Board of Directors was elected: Jos. F. Mitchell, E. C. Lavers, Job Cook

L. R. Strobbridge and C. C. Robingsen, with W. A. Coventry as treasurer.

Davies & Thomas, Catsauqua, Pa., have recently made a reduction of 10 per cent. in the wages of their employees.

It is stated that the output of the Westinghouse Electric & Mfg. Company of Pittsburgh for December, 1893, amounted to \$550,000, and for November \$500,000.

The new machine shops of the Southern Pacific at Ogden, Utah, have been completed and are now in operation. The city of Ogden and Weber County have paid the company the specified bonus of \$20,000 in cash and \$9800 worth of brick.

The report is again revived that the Lake Shore Railroad Company are about to build extensive shops at Collinwood, Ohio.

The gross earnings of the Union Switch & Signal Company for 11 months ending November, 1893, are reported as amounting to \$1,158,000, the expenditures being \$975,000, and the net earnings \$138,000.

Hardware.

Buck Bros., Millbury, Mass., have just completed an order from one of the largest hardware houses of Boston, taken on contract with the Mechanic Arts High School of that city, for \$1000 worth of chisels, turning tools, carving tools, reamers and screw drivers for the use of the students. The tools are a fine assortment, and are all stamped with the well-known buck's head. We are advised that the tools were selected by the Committee on Supplies, the contract calling for this make of goods. Buck Bros. are making a line of tools specially adapted for use in manual training schools.

The nail mills of the Cumberland Nail & Iron Company, Bridgeton, N. J., resumed operations on the 2d inst. A reduction of 10 per cent. in wages in all departments went into effect at the same time.

The factory of Charles Buck, Millbury, Mass., is running four days per week, nine hours a day.

The Dunn Edge Tool Company's shops, at Oakland, Maine, had a narrow escape from destruction by fire on the 26th ult. During the forenoon one of the men in the tempering room, thinking he scented smoke, investigated and found a vigorous fire burning between the walls. The workmen were notified, and after a hard fight the flames were extinguished. Part of the roof, however, had to be torn up to do it.

After an existence of over ten years, the Western Nail Company, Bellevue, Ill., have surrendered their charter and certified to a dissolution of their organization. The company had a capital stock of \$200,000, and had done a large business up to a year ago.

The directors of the Meriden Britannia Company, Meriden, Conn., held their annual meeting on the 30th ult. George H. Wilcox was elected president, to succeed the late Isaac C. Lewis; F. P. Wilcox of New York, vice-president, and George Rockwell, secretary. George H. Wilcox is the elder son of the late Horace C. Wilcox, formerly president of the company. The nomination for president had been tendered to Daniel B. Hamilton of Waterbury, but he declined to serve on account of poor health.

The Orchard Pruner Company have been organized at Ottawa, Kan., with a capital stock of \$15,000. The directors are Joseph L. Hawkins, George D. Steinbaugh and George W. Lawrence, all of Ottawa.

The Tremont Nail Company, Wareham, Mass., have reduced the wages of their employees 10 per cent.

The works of the Hopkins & Allen Mfg. Company, Norwich, Conn., which have done little since last July, have just received an order which will keep the concern busy for at least three months.

H. D. Smith & Company, Plantsville, Conn., have made a reduction of from 10 to 25 per cent. in the wages of their employees.

The works of the H. M. Myers Company, Beaver Falls, Pa., manufacturers of shovels, spades and scoops are now in full operation, turning out about 200 dozen shovels per day, and the firm have enough orders on hand to keep their plant fully employed until after February 1. Chas. H. Hubbard, secretary of the above firm, has departed on an extended Western trip in the interests of his concern, and expects to secure a large share of trade throughout that section.

The stock of the Sercombe-Bolte Mfg. Company, Milwaukee, Wis., was purchased

by John S. George on December 19, 1893, at receiver's sale. It is stated that the company will be reorganized, new capital put in and the manufacture of bicycles continued.

The Storm Mfg. Company of Newark, N. J., are introducing their goods to all parts of the country, and are meeting with a gratifying demand from South America. They will soon ship a large order of elevators, of which they make a specialty, to Costa Rica, and have hopes of developing a considerable foreign trade.

Waterbury Brass Company, Waterbury, Conn., and 296 Broadway, New York, announce, under date of January 1, that they have just completed extensive brass rolling and wire mills to replace those destroyed by fire in January, 1892. They have placed in these mills new and improved machinery, which will enable them to meet the requirements of the trade on manufactured goods.

Henry Diston & Sons, Tacony, Philadelphia, began Monday to run on full time and full handed to fill orders which are coming in freely. The firm employ over 2000 men.

The Appleton Mfg. Company, Appleton, Wis., manufacturers of agricultural implements, have received an offer from Geneva, Ill., of a tract of land with a building 44 x 90 feet, two stories high, as a bonus if they will remove their plant to that city. The offer is being considered, with a probability of acceptance. The removal, if decided upon, will not take place before next July. The concern employ 200 men, and the payroll amounts to about \$100,000 annually.

Interchangeable Tool Company, formerly of Boonton, N. J., now of Utica, N. Y., are in possession of their new works, recently completed. The authorities there, as an inducement to locate in that place, we are informed, deeded the company some land, guaranteed immunity from taxation for a term of years and took some of the capital stock. Their main building is 250 x 30 feet in dimensions. Besides this they have a separate building in which they now do their own drop forging, it having been contracted outside heretofore. They are soliciting drop forged work for bicycle and other manufacturers. They anticipate even better results in this line and also in connection with their Hall compound cutting nippers and pliers and expect through improvements and increased facilities to be able to quote somewhat modified prices on their goods. Their agents for Eastern territory are W. W. Pryor & Co., 81 Chambers street, New York, who carry a full stock for immediate deliveries.

The New York Fence Company have been incorporated at Syracuse, N. Y., to manufacture wire fencing and wire fence specialties. The capital is \$10,000. The directors are J. B. Graham, P. F. Frost and S. J. Newton.

The Phoenix Knife Company, Phoenix, N. Y., will probably resume operations in a few days.

After being idle ten weeks, William Shimer, Sons & Co., Freemansburg, Pa., have started up their works, 100 workmen being employed.

The Miller Lock Company of Frankford, Philadelphia, about doubled their capacity during 1893, and are at present employing upward of 100 hands. They report stock in hand very low, and urge the placing of orders early to insure prompt attention.

Miscellaneous.

The Standard Underground Cable Company, Pittsburgh, have declared the usual quarterly dividend of 1½ per cent. During the year the company secured new orders amounting to \$628,000. At the beginning of the year unfilled orders amounting to \$100,000 remained on hand, which makes the approximate business for the year \$725,000 gross. For the first 11 months of the year the net earnings amounted to \$118,735, and it is estimated that with December's earnings the company will show net returns of at least \$130,000, which is over 12 per cent. on the capital stock. The net earnings of 1892 were \$93,000, showing an increase during 1893 of about \$40,000. The company have most of their departments running day and night throughout the year, and begin the new year with enough orders on hand to run day and night until May 1. The full statement will be presented at the annual meeting later in the present month.

Some specialties in the shape of metal roofing will soon be placed on the market by W. H. Mullins of Salem, Ohio.

The designs were invented by W. R. Kinnear, president of the Kinnear & Gager Company, Columbus, Ohio.

J. H. Eller & Co., manufacturers of iron and steel roofing, Canton, Ohio, state that their business, which was established in 1887, has increased in volume from 75 tons to 1000 tons per year. The extension has not been confined to any particular territory, as new customers have been found in all parts of the United States.

M. H. Crittenden & Son, Minneapolis, Minn., are increasing the sale of their iron and steel roofing, siding, &c., notwithstanding dull times. They report sales of two carloads per week, equal to about 1500 tons per year. Their trade, which has been secured by systematic advertising, has extended to all parts between the lakes and the Pacific Coast.

The Cambridge Roofing Company, Cambridge, Ohio, report that their large output during the early months of 1893 has kept their average up to previous years. During the closing months and up to the present time business has been somewhat dull, but they are able to keep their force employed filling the wants of customers of long standing.

The Rogers Locomotive Works, at Paterson, N. J., are practically closed.

The Ensign Car Works, at Huntington, W. Va., announce that they will resume work at once, after an idleness of over seven months. The works employ between 1200 and 1500 men.

The works of the Kidd Steel Wire Company, Limited, Sharpsburg, Pa., manufacturers of polished drill rods were in full operation until December 23, on which date the works closed down for a few days for necessary repairs and stock taking. Upon resumption of operations on Tuesday morning, January 2, it was decided to run only 40 hours per week until business improves.

The Appleton Mfg. Company of Appleton, Wis., have purchased a site at Geneva, Ill., about 30 miles from Chicago, and will move their plant there in the spring. The new plant will give employment to about 200 men in the manufacturing of farm machinery. This move is made because of the excessive freight rates which the company have hitherto had to pay. It is claimed that by removing to Geneva thousands of dollars in freightage can be saved. Work on the new factory will be begun next month.

The Joint Stock Association, organized and doing business as Fulton, Reno & Co., Limited, at Pittsburgh, Pa., has been dissolved by limitation. Wm. H. Fulton has transferred his interests to Albert Roessing, who, with A. D. Roessing and John E. Flynn, will continue the business under the name of the Allegheny Brass & Bronze Foundry Company.

On the 30th ult., at Beloit, Wis., the manufacturing corporations of the Eclipse Wind Engine Company, the Williams Engine & Clutch Works and all corporations of which they are the successors were transferred to and became the manufacturing department of the corporation of Fairbanks, Morse & Co. of Chicago. G. W. Sparks, the manager of the Eclipse Wind Engine Company, continues in charge of the office of the works, and H. F. Probert, manager of the Williams Engine Works, will be mechanical manager of the shops.

In the last week of 1893 an assignment was made by the San Francisco Bridge Company of San Francisco, Cal., for the benefit of their creditors. It is stated that the failure was caused by the loss of a raft of piles which the company were having towed down the coast, which went ashore in Humboldt County. It is claimed that the company have sufficient assets to liquidate their indebtedness.

Among recently authorized corporations in Chicago are the R. D. Wheaton Bridge Company; capital stock, \$50,000; incorporators, R. D. Wheaton, G. F. Hoag and Charles H. Wheaton. The company succeeded to the business of R. D. Wheaton, 358 The Rookery, builder of bridges and general structural work; also, the Crane & Jack Company; capital stock, \$100,000; to deal in machinery supplies and merchandise; incorporators, A. M. Gilbert, Alexander D. McGill and Robert L. Tatham.

The employees of the Cincinnati Barbed Wire Works, Cincinnati, Ohio, between 500 and 600 in number, have struck against a reduction of 10 per cent. in wages.

The marine department of the Maryland Steel Company, Sparrows Point, Md., turned out \$600,000 worth of marine work last year. The work completed at that yard was the steel steamship "Alabama," of 1370 tons; the steel steamship "Gloucester," 2500 tons, and the steel tugs "Dorothy" and "Francis," of 80½ tons each. The steel police boat "Patrol" for New York City and steel yacht "Dungeness," for Mrs. Lucy C. Carnegie of Pittsburgh, Pa., are still in course of construction. About 700 men who have been employed in the Bessemer and rail mill and at the furnaces were paid off Tuesday, the shutting down of these departments throwing them out of employment for an indefinite period.

The Howard Stove Company, Beaver Falls, Pa., have made a voluntary reduction in the rent of houses occupied by their workmen. Rents are reduced \$3 per month.

Export Notes.

WILLIAM E. PECK, exporter, 64 William street, New York, recently returned to New York from a business trip to Europe, which was begun October 21 last. While away he visited his branch house in London, and agents in Paris, Vienna and Hamburg, who represent him in special lines.

The Lamport & Holt line of steamers to Brazil, Paul F. Gerhard & Co., Freight Agents, New York, are still operated uninterruptedly, although business is very much restricted at present, owing to the difficulties there.

The agreement between the two steamer lines from New York to South African ports has been discontinued. Commencing with the New Year each line will load and dispatch vessels at about corresponding dates, instead of alternating monthly as heretofore for the past few months.

Winfield S. Stern, with Flint & Co., manager of the Chilean business of that concern, with headquarters at Valparaiso, is now in New York. He will be here for some weeks yet and before his return will meet manufacturers having trade there or desirous of marketing goods in that country. One of the objects of his visit is in connection with exhibits to the Mining and Metallurgical Exhibition to be held in Santiago, Chili, in 1894. It was originally intended to open it April 1, but the government has since postponed the date to September 1 next, to afford manufacturers desirous of participating more time. It will be remembered the legislative authorities there have appropriated money to defray cost of transportation on sea and land both ways on such exhibits. Also transportation expenses both ways for workmen sent out to set up the machinery. The exhibition will last two months.

M. C. Ogden has just been elected a director of the National Shoe and Leather Bank. This institution is about completing a fine new building on the site of their old one at 271 Broadway, corner of Chambers street. Mr. Ogden is well known to the Hardware trade as the president of the Eagle Lock Company, Southington Cutlery Company, American Curry Comb Company, and New York Vitrefied File Company, together with several directorships in a number of other corporations. He is also one of the Board of Governors in the Hardware Club. The bank is to be congratulated on securing his services. John H. Graham of John H. Graham & Co., has for some time been a director in the same bank.

Chicago.

(By Telegraph.)

Office of *The Iron Age*, 59 Dearborn street, }
CHICAGO, January 10, 1894. }

Pig Iron.—Inquiries for Coke Iron have been much more numerous since our last report, covering large and small quantities, and coming from all classes of consumers. Sales of small lots have also increased in number. There is, however, no immediate prospect of an improvement in prices, as competition is keen on all orders coming up. Lake Superior Charcoal is extremely quiet, and transactions are confined to small lots only. Bankrupt stocks are being offered low and thus cause reports which are current of a decided break in makers' prices, but they insist that they have not found it necessary to yield, and report sales at about the prices given in our quotations. Quotations are now as follows for cash:

Lake Superior Charcoal.....	\$15.30 @ \$15.50.
Local Coke Foundry, No. 1....	13.00 @ 13.50
Local Coke Foundry, No. 2....	12.50 @ 12.75
Local Coke Foundry, No. 3....	12.00 @ 12.50
Local Scotch.....	13.50 @ 14.00
Ohio Strong Softeners No. 1....	15.50 @ 16.00
Southern Silvery, No. 1.....	..... @ 13.75
Southern Silvery, No. 2.....	..... @ 13.25
Southern Coke, No. 2.....	11.90 @ 12.15
Southern Coke, No. 3.....	11.40 @ 11.65
Southern, No. 1, Soft.....	11.90 @ 12.15
Southern, No. 2, Soft.....	11.40 @ 11.65
Tennessee Charcoal, No. 1....	16.00 @ 16.50
Tennessee Charcoal, No. 2....	..... @ 15.00
Southern Gray Forge.....	10.80 @ 10.85
Alabama Car Wheel.....	18.00 @ 18.50
Jackson County Silvery.....	16.00 @ 16.50
Other Ohio Silvery.....	15.00 @ 15.50

Bars.—The past week was one of the duller for a long time. Inquiries have been received for large lots, but they are only tentative and do not lead to business. Transactions were confined to small quantities and on these very low prices were made. Current quotations are continued at 1.30¢ @ 1.35¢, Chicago, for either Iron or Soft Steel, but concessions are made on good specifications. Jobbers are quoting small lots from stock at 1.55¢ @ 1.65¢, according to quantity.

Structural Material.—The Milwaukee Viaduct has at last been settled and, as stated in the earliest reports, has been awarded to the Detroit Bridge & Iron Works. Business in other directions continues extremely light, and there is no immediate prospect of much activity in either new buildings or bridge work. Quotations are as follows, Chicago delivery: Beams, 1.65¢ @ 1.75¢; Tees, 1.90¢ @ 2¢; Angles and Universal Plates, 1.60¢ @ 1.65¢. Small lots are sold from stock at an advance of 10¢ @ 15¢ @ 100 above these prices.

Plates.—Both store and mill trade show a decided gain on the preceding months. Some orders placed lately have run into considerable tonnage, but the volume of business is still much below what it should be. Mill shipments, Chicago delivery, are quotable as follows: Tank Steel, 1.55¢ @ 1.65¢; Shell Steel, 1.75¢ @ 1.85¢; Flange Steel, 1.95¢ @ 2.05¢; Fire Box, 2.75¢ @ 5¢. Store prices now prevail as follows: Iron or Steel Sheets, Nos. 10 to 14, 2¢ @ 2.10¢; Tank Steel, 1.90¢ @ 2¢; Shell Steel, 2.20¢ @ 2.40¢; Flange Steel, 2.50¢ @ 2.65¢; Boiler Tubes, 70 and 5 % off.

Sheets.—Trade continues absolutely dead in Black Sheets. There is considerable pressure to sell by many mills, but quotations seem to be maintained on mill shipments of No. 27 Common Iron at 2.65¢ @ 2.70¢, Chicago. Small lots from stock are unchanged at 2.90¢ @ 3¢. Galvanized Iron is in a little better condition than Black Sheets and

manufacturers' agents expect prospects of considerable business within the next 30 days. Quotations on mill shipments of Juniata Galvanized are continued at 75 and 10 % off, while small lots from stock are selling at 70 and 10 %. Sheet Copper is weaker at 30 @ 30 and 5 % off, according to quantity.

Merchant Steel.—Mill agents report a fair business, but only in a small way. Some orders are coming forward for immediate shipment, and large consumers seem likely to buy frequently this year, as their season contracts must be considerably below their actual requirements. Prices are unchanged. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery, Tire and Open Hearth Spring Steel, 1.90¢ @ 2¢; Ordinary Bessemer Machinery, 1.60¢ @ 1.65¢; Ordinary Bessemer Tire, 1.55¢ @ 1.60¢; Ordinary Tool Steel, 6¢ @ 7¢; Specials, 12¢ and upward.

Billets.—Manufacturers report no inquiries at present, and, therefore, quotations are only nominal at \$19.25 @ \$19.50, Joliet.

Rails and Track Supplies.—The Steel Rail trade is extremely quiet, except for small lots, which are mainly bought from Eastern mills as the works here are not running. Manufacturers expect that Western roads will take about the usual quantity of Rails this year, but as the price is fixed there seems to be no special inducement for them to hurry forward and place their orders. Prices are firm at \$25 @ \$27, according to quantity. Splice Bars are unchanged at 1.55¢ @ 1.60¢; Track Bolts with Hexagon Nuts, 2.55¢ @ 2.60¢, and Spikes, 1.90¢ @ 1.95¢.

Old Rails and Car Wheels.—A sale of Old Iron Rails is reported at private terms, understood to be considerably under \$13, Chicago. The railway companies are disposed to part with their stock of Iron Rails a little more freely, but find consumers and dealers chary about making purchases. The consumption at present is quite light, and manufacturers of Bar Iron seem to have completely given up their use. Old Steel Rails are neglected, with nominal quotations \$7.50 @ \$10, according to length. Old Car Wheels are quiet, with the nominal quotation \$11, from speculative buyers.

Scrap.—The railroads are offering large quantities of Old Material, which has been accumulating for some time, but has been withheld from the market in hope that times would improve and its value advance. Consumers have taken advantage of this situation and have bought heavily direct from the railroads at low prices. It is understood that some transactions have occurred in this way at less than \$3.75 for No. 1 Railroad Wrought. Dealers continue to quote selling prices as previously reported, but are not able to effect transactions on that basis. Axles have changed hands at \$15; Heavy Cast is now selling at \$8 and Stove Plate at \$7. Steel is completely neglected.

Metals.—Carload lots of Lake Copper continue to be quoted at 10¼¢. Casting Copper is quoted at 10¢, and dealers are in receipt of some inquiry. Sales of Spelter have occurred in carload lots at 3.40¢, but this price is being shaded by some weak holders. Pig Lead is dull at 3.05¢.

Edward C. Brainard has for several years been Western manager for

both the Salem Wire Nail Company of Salem, Ohio, and the Falcon Iron & Nail Company of Niles, Ohio. The business of the latter company has been increasing so rapidly that it became desirable to have exclusive attention from the Western representative, and Mr. Brainard has therefore severed his connection with the Salem Wire Nail Company. His successor is B. E. Hamilton, who has been his very capable assistant. The office of both companies will be retained in room 415 Western Union Building, Chicago.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St.,
PHILADELPHIA, Pa., January 9, 1894.

There is no very decided change in the condition of the Iron and Steel trade, but in some quarters there is a disposition to regard the outlook somewhat more favorably. There is more business around than for some time past, but with so many competing for it, it goes without saying that prices are no better. It is a little too soon to attempt to forecast the future with any great degree of confidence, as there are several diverse elements to take into consideration, which for the present are in little more than an embryo condition; for instance, it is hard to tell how many inquiries will result in actual business, and still more difficult to estimate to what extent the fight in the West will affect the market. Then there is the reduction in wages, notably in the Carnegie mills, as well as the prospect of another severe struggle in the Coke trade. Taking everything into consideration, there does not appear to be much chance of better prices, while it is still an open question whether the volume of business will be larger than it has been during the past few weeks. There is a good general inquiry, but no large orders are in sight, and such as there are are no benefit to the trade, as they are taken at less than cost. To summarize what we have already said, we repeat that the general feeling is more hopeful, inquiries are more numerous, sales are made with less difficulty, but there is no improvement in prices and not much increase in the volume of business.

Pig Iron—Sellers are firmer on good brands of No. 1 Foundry, which is relatively in small compass. Additional furnaces are blowing in, however, and as the owners intimate their willingness to meet the market, the chances for any material improvement in prices are not very strong. Lower grades are in full supply, with prices somewhat irregular and in spots a little weak. Buyers could be found for good sized lots nevertheless, providing that \$11 @ \$11.25 would be accepted for good all Ore Irons, Philadelphia delivery, or at less than \$11 for an ordinary grade. As a rule, bids are about 50¢ below sellers' ideas, so that there is not much actual business to report, and while they may yet come together on a compromise, the question for the present is still undecided. General quotations for seaboard deliveries are about as follows:

No. 1 Foundry \$13.75 @ \$14.25
No. 2 Foundry 13.00 @ 13.25
Standard Gray Forge 11.50 @ 12.00
Ordinary Gray Forge 11.00 @ 11.25

Steel Billets.—There is not much actual business to report, although prices are lower than ever. Sales of good sized lots were made late last week at \$18.50, delivered to near by mills, but they are offered to day at a trifle less, and on the right kind of bid

could doubtless be secured at \$18.25. Consumption is limited, however, and without some definite prospect of material being wanted it is not an easy matter to draw out a bid, although at these figures prices ought to be very tempting.

Finished Material.—The volume of business appears to be increasing a little, and prospects are thought to be somewhat more favorable, but there is no improvement in prices. The senseless competition of some of the mills has a very demoralizing effect, so that it is almost impossible to form any very clear idea of what may be quoted on a good sized lot, but, as Mr. Toots would say, "it's of no consequence." Among the smaller consumers there is a very fair business and at comparatively good figures, uniformity of quality being more of an object than 15¢ or 20¢ @ 100 in price. On large orders, however, it is difficult to say what figures would be accepted. One Pittsburgh concern is said to have put in an application for an order for 1500 tons, giving the buyer the privilege of making a price to suit himself. Apart from the demoralization caused by this reckless method of doing business, it is considered that the situation is improving. There is a better feeling among small traders, and orders with them are evidently increasing, as they are taking a great deal of stuff in a steady, persevering kind of way that is very encouraging. Prices vary so much that it is hardly worth trying to quote on any but small lots of the best quality, buyers of large lots, as we said before, having been invited to make their own figures. In this connection, however, it may be noted that those who have the best reputation for quality, and who firmly decline to meet such competition as we have mentioned, are really doing the steadiest business. Consumers have confidence in the quality, and are unwilling to jeopardize their own work by substituting other material simply because temporarily it happens to be offered to them at cut prices. A fair average of prices would be about as follows:

Grooved Skelp, delivered.....	1.40¢	@	1.45¢
Best Refined Bars.....	1.40¢	@	1.45¢
At interior points.....	1.30¢	@	1.35¢
Tank Steel.....	1.45¢	@	1.55¢
Heavy Plates.....	1.50¢	@	1.60¢
Shell.....	1.60¢	@	1.75¢
Flange.....	1.90¢	@	2.00¢
Angles.....	1.60¢	@	1.70¢
Beams and Channels.....	1.65¢	@	1.80¢

Old Material.—There is no improvement in the situation, low prices being no inducement to any one not in need of material. Asking prices are about as follows, delivered:

Heavy Melting Steel.....	\$10.50 @ \$11.50
Light Melting Steel.....	8.00 @ 9.00
No. 1 Wrought Scrap.....	11.50 @ 12.00
Machinery Cast.....	9.50 @ 10.50
Wrought Turnings.....	9.50 @ 10.00
Cast Borings.....	6.50 @ 7.00
Old Iron Rails.....	13.00 @ 13.50

Lee Chamberlain & Co., who continue the business of the recently dissolved firm of Chamberlain, Turney & Baird, Pig Iron sales agents, have appointed George C. Davies manager of their Philadelphia office in the Provident Building. Mr. Davies is very well known to the trade in this section, having been with Chamberlain, Turney & Baird since the establishment of their offices in the East, and prior to that time was superintendent of Norway Furnace and Boyertown mines, operated by Gabel, Jones & Gabel of Pottstown,

Pa. Chas. D. Hubbard, formerly of Chas. Hubbard & Co., New York, will remain with the new firm, in charge of their correspondence.

The Dunbar Furnace has just gone into blast, and will be run on its former well known grades of Iron for foundry purposes. L. & R. Wister & Co. are the agents, and state that they are prepared to meet the market and will be pleased to quote on application.

Francis Wister has removed from the Bullitt Building to the Commercial Union Building, 420 Walnut street, and in addition to his lines in Coke and Ores will make a specialty of small sizes of Anthracite Coal for steam raising purposes.

Emerson E. McCargo, the Eastern agent of Anderson, Du Puy & Co. of Pittsburgh, Pa., manufacturers of Steel, has removed from 25 North Fifth street to 817 Filbert street, Philadelphia.

John L. Hogan has removed from the Bullitt Building to the Philadelphia Bank Building, 421 Chestnut street.

Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fifth and Main Sts.,
CINCINNATI, January 10, 1894.

The past week has been almost the same as the preceding one, there being scarcely more than a car lot trade in Pig Iron for current delivery, and some of the furnaces are becoming anxious for customers, but they are too careful to urge stocks when there is no disposition to buy. The largest sale that transpired was 600 tons for delivery in equal quantity for six months, for which pretty full current prices were obtained, but if there were known to be buyers for any considerable quantity they would doubtless be soon overwhelmed, for the market is a weak one, but exactly how weak can only be determined by actual transactions, and no one seems to have backbone enough to make bids at this juncture. The gloomy reports which come from Pittsburgh and other districts have a detrimental effect upon our market, and there seems to be a tacit understanding between buyers and sellers that prices shall be nominally unchanged for the present. Quotations are as follows:

Foundry.

Southern Coke, No. 1.....	\$11.75 @ \$12.00
Southern Coke, No. 2.....	10.75 @ 11.00
Southern Coke, No. 3.....	10.25 @ 10.50
Ohio Soft Stone Coal, No. 1.....	15.50 @ 16.00
Ohio Soft Stone Coal, No. 2.....	14.50 @ 14.75
Lake Superior Coke, No. 1.....	15.00 @ 15.25
Lake Superior Coke, No. 2.....	14.00 @ 14.25
Hanging Rock Charcoal, No. 1.....	18.50 @ 19.00
Hanging Rock Charcoal, No. 2.....	17.50 @ 18.00
Tennessee Charcoal, No. 1.....	14.00 @ 14.25
Tennessee Charcoal, No. 2.....	13.00 @ 13.25

Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	17.75 @ 18.00
Lake Superior Car Wheel and Malleable.....	17.00 @ 17.25

Forge.

Gray Forge.....	9.75 @ 10.00
Mottled Coke.....	9.50 @ 9.75

The commission house of Chamberlain, Turney & Baird of Columbus has been dissolved by mutual consent. Mr. Chamberlain has sold out his interest in the Virginia Iron & Railway Company to Mr. Turney, and having purchased the interest of other partners in the commission business has formed the new firm of Lee Chamberlain & Co.

St. Louis.

(By Telegraph.)

Office of The Iron Age,
Bank of Commerce Building,
St. Louis, January 10, 1894.

Pig Iron.—The market remains in an unchanged condition. The only feature of encouragement in the situation is the improved demand for Gray Forge Iron, caused by the recent contracts placed with the Southern Pipe-makers. The stock of Gray Forge has been large, and this outlet will help to diminish it quite materially. Lower prices do not increase sales, as consumers believe they will lose nothing by adopting a waiting policy. We quote as follows for cash, f.o.b. cars St. Louis:

Southern Coke, No. 1 Foundry	dry	.....	\$12.00 @ \$13.25
Southern Coke, No. 2 Foundry	dry	.....	11.25 @ 11.50
Southern Coke, No. 3 Foundry	dry	.....	10.50 @ 10.75
Southern Gray Forge	.....	.....	10.00 @ 11.25
Southern Car Wheel	.....	.....	17.00 @ 18.00
Lake Superior Car Wheel	.....	.....	16.50 @ 17.00
Ohio Softeners	.....	.....	16.00 @ 16.50

Bar Iron.—It don't seem possible that prices are lower than last reported, but such is the fact, and to judge by the manner mills are racing after orders, large and small, still lower prices will prevail. Mills are now filling orders at 1.25¢ @ 1.30¢ and concessions are made on good specifications. The nominal quotation from store continues 1.60¢ @ 1.65¢.

Barb Wire.—There is no improvement to note in Barb Wire. Sales are small and prices are gradually growing weaker. Mills quote \$1.85 for Painted in carload lots to jobbers, which price is shaded in some cases to \$1.80. Galvanized commands the usual advance of 40¢ per cwt.

Wire Nails.—There appears to be no bottom to Wire Nails. Mills are now filling orders for carload lots at \$1.20 @ \$1.25. An outside mill which is reported to be in financial difficulty is offering Nails at considerably less money, but the above prices really constitute the market. The outlook for Nails is indeed gloomy, and some of the jobbing houses have placed their figures for buying at \$1 rate, f.o.b. cars St. Louis, but it is doubtful if they reach this price.

Rails and Track Supplies.—Business has been of a routine nature and the demand is largely of a hand-to-mouth character. We quote as follows: Splice Bars, 1.55¢ @ 1.60¢; Spikes, 1.85¢ @ 1.90¢; Bolts, Square Nuts, 2.35¢; with Hexagon Nuts, 2.45¢; Links and Pins, 1.80¢ @ 1.85¢. Old Iron Rails, \$13 @ \$13.50. Steel Rails, \$26.50 @ \$27.

Pig Lead.—No business doing whatever. Sellers ask 3¢, but this price does not interest buyers.

Spelter.—At 3.27½¢ an occasional carload is reported, but outside of this the market is void of any interest.

Cal Hirsch & Sons Iron & Rail Company, St. Louis, Mo., succeed to the business formerly carried on under the name of Cal Hirsch. The capital stock of the company is \$150,000, all paid, and the officers are as follows: Cal Hirsch, president, and Isaac C. Hirsch, secretary, treasurer and general manager.

The Ripley-Detrick Supply Company, St. Louis, succeed to the business of Ripley & Bronson. L. B.

Ripley, formerly president of Ripley & Bronson, is general manager of the new company.

New York.

Office of The Iron Age, 95-102 Reade street,
New York, January 10, 1894.

Pig Iron.—The sensation of the week has been the announcement of a reduction of prices on the part of the Lowmoor Iron Company of Virginia, whose Iron ranks among the highest in quality in this and in the New England markets. The prices announced are \$12.50 for No. 2 and \$13 for No. 1 Foundry. The Lowmoor Iron Company have taken this step in defense of their trade, but it is not proposed to contract ahead heavily at the low figures made. As yet the other leading makers of the equivalent highest grades of Northern Iron have not followed suit, nor are the facts stated yet so generally known that the producers of the cheaper grades have had a chance to take action. It is probable, however, that the course pursued will bring matters to a crisis, at least so far as this and tributary markets are concerned. We quote: Standard brands, \$13 @ \$14 for No. 1; \$12.50 @ \$13 for No. 2; \$11.75 @ \$12.50 for Gray Forge, at tidewater. Southern Iron, same delivery, \$13 @ \$13.50 for No. 1; \$12 @ \$13 for No. 2; \$11.50 @ \$12 for No. 3; \$11.50 @ \$12.25 for No. 2 Soft, and \$12.25 @ \$12.50 for No. 1 Soft. Gray Forge is \$11.25 @ \$11.75.

Spiegeleisen and Ferromanganese.—There is no business to report. Prices are nominally \$21.50 @ \$22, for 10 % @ 12 %, and \$25 @ \$25.50 for 20 % Spiegeleisen, and \$55 tidewater, domestic Ferromanganese, 80 %.

Steel Rails.—There is some inquiry for small lots and some demand, in a small way, for light Rails. For Standard Sections only one order for 5000 tons on cars is in the market for a nearby road. The price remains unchanged at \$24.80, tidewater delivery.

Track Material.—We quote as follows for small lots: Spikes, 1.70¢ @ 1.90¢; Fish Plates, 1.25¢ @ 1.40¢; Track Bolts, Square Nuts, 2.10¢ @ 2.40¢, and Hexagon Nuts, 2.30¢ @ 2.50¢, delivered. Concessions would be made for round lots.

Manufactured Iron and Steel.—The market is in a demoralized condition, and prices are entirely nominal. A dock shed in this city is supposed to be ready for closing, but, generally speaking, the demand is very light. Extraordinary prices keep cropping up. Thus 1.38¢, Pittsburgh, for Plates, marine specifications, has been named, and Steel Bars are said to have sold below 1.25¢, Pittsburgh. We quote nominally: Beams up to 15-inch, 1.60¢ @ 1.80¢; 20-inch, 1.80¢ @ 2¢; 24-inch, 2¢ @ 2.25¢, for round lots; Angles, 1.55¢ @ 1.70¢; Universal Mill Plates, 1.50¢ @ 1.65¢; Tees, 1.75¢ @ 2¢; Channels, 1.60¢ @ 2¢, on dock. Steel Plates are 1.45¢ @ 1.55¢ for Tank; 1.60¢ @ 1.75¢ for Shell; 1.90¢ @ 2¢ for Flange, and 2.25¢ @ 2.50¢ for Fire Box, on dock; Refined Bars are 1.40¢ @ 1.9¢, on dock, and Common 1.30¢ @ 1.50¢; Soft Steel Bars are 1.40¢ @ 1.50¢; Scrap Axles are quotable at 1.6¢ @ 2¢, delivered; Steel Axles, 1.6¢ @ 1.9¢, and Links and Pins, 1.6¢ @ 1.80¢; Steel Hoops, 1.70¢ @ 1.90¢, delivered; Cotton Ties, 70¢ @ 72½¢ per 45-lb bundle, at mill; Machinery Steel, 1.45¢ @ 1.50¢; Toe Calk, 1.90¢ @ 2¢ and Sleigh Shoe, 1.65¢ @ 1.75¢, delivered.

Metal Market.

Pig Tin.—The best statistical showing made up to the present time has failed to stimulate business in the slightest degree. With business dull and tariff uncertainties perplexing, prices have followed in the wake of the fluctuations in the London market, despite steady, although slow, depletion of stocks in first hands on this side of the Atlantic. As against 20.50¢ @ 20.60¢ quoted a week ago, cash prices for 10-ton or larger lots are 20.20¢ @ 20.25¢ at the present time. The foreign depreciation keeps the American price below the import cost, on the basis of lowest London quotations, and little Tin has been landed except in bond. The available supply at current quotations is comparatively moderate in consequence, but apparently more than sufficient to satisfy imperative trade requirements.

Copper.—No improvement has taken place in the demand for any variety of this metal, and dealings have been confined almost wholly to comparatively small lots for prompt or immediate future delivery. Were it not for the remarkably large quantity of Copper exported last year the market would doubtless show much poorer form. As it is, there are evidences of rather soft undertone and reasons to suspect that current production is running considerably ahead of deliveries. Still the accumulation is causing no unusual pressure to sell and values hold remarkably steady in the face of the dull condition of trade. Lake Superior Ingot is offered by several sellers at 10½¢, and in remote instances quotations of as low as 10.15¢ @ 10.20¢ have been made. Electrolytic is held 9½¢ @ 10¢, and casting stock at 9½¢ @ 9¾¢, according to brand and quantity.

The Bureau of Statistics returns give exports of Copper during the 11 months ending November 30, as follows:

Ore.	1893. Tons.	1892. Tons.
To United Kingdom	39,344	44,786
To Germany	1,043	1,462
To other Europe	.....	168
Totals	40,407	46,426
Ingots, Bars and Old.	Lbs.	Lbs.
To United Kingdom	33,646,042	2,874,969
To Germany	1,796,167	5,699,940
To France	25,259,573	6,756,681
To other Europe	44,186,789	10,913,996
To other countries	723,748	99,206
Totals	119,602,319	26,344,792

Pig Lead.—Through a reduction in the price to 3.20¢ sales of about 500 tons were made at 3.20¢ during the early part of the week. Additional lots were subsequently offered at the same rate, but buyers responded very feebly, and later requests for bids of 3.15¢ were disappointing as an inducement to purchase. The market has thus shown weaker form than at any time since prices broke below the 3.50¢ mark, and it is an interesting fact that the few speculators who endeavored last month to make a strong market on a weak foundation have realized on at least a portion of their holdings. The term "realized" may be variously construed. There were speculative bids on the Exchange on Wednesday of 3.15¢ for single carloads, but consumers would not go above 3.10¢ for 50-ton or larger quantities.

Spelter.—Lower prices are again to be recorded. Ordinary Western brands have been sold at 3.50¢ @ 3.55¢, and the better sorts have commanded merely the ordinary premium. It does not appear that the concessions made have expedited business in the slightest

degree. To the contrary, the market, besides showing weakness, is surprisingly dull, with nothing in the way of surroundings indicative of any decided change for the better in the immediate future, since European as well as home markets have shown a downward tendency.

Antimony.—The demand has been somewhat uneven, but the volume of business makes a fair showing, considering the condition of general trade. Prices remain quite steady at 9½¢ @ 9¼¢ for Hallett's and 10¼¢ for Cookson's, in round lots.

Tin Plate.—There are no signs yet of improvement in the demand that was expected to materialize after the holiday season, as in former years. In fact, buyers are indifferent in the extreme. They take spot goods only as absolute wants dictate and manifest little else than curious interest in forward deliveries. The latter have, in some instances, been offered at specially low rates for February-March shipment. Spot goods are quoted as follows: Coke Tins—Penlan grade, IC, 14 x 20, scarce; J. B. grade, do., \$5.30; Bessemer full weight, \$5.30; light weights, \$4.85 @ \$4.90 for 100 lb., \$4.80 for 95 lb., \$4.62½ for 90 lb. Siemens Steel scarce. Stamping Plates—Bessemer Steel, Coke finish, IC basis, \$5.60; Siemens Steel, IC basis, \$5.65; IX basis, \$6.75 @ \$6.80. Charcoals—Melyn grade, IC, \$6.35; Crosses, \$7.87½; Allaway grade, IC, \$5.60; Crosses, \$6.75; Grange grade, IC, \$5.75; Crosses, \$6.85. Charcoal Terness—Worcester, 14 x 20, scarce; do., 20 x 28, \$11.35; M. F., 14 x 20, \$7.35 @ \$7.37½; do., 20 x 28, \$14.75; Dean grade, 14 x 20, \$5.35; do., 20 x 28, \$10.50 @ \$10.60; D. R. D. grade, 14 x 20, \$5.15; do., 20 x 28, \$10.10; Alyn, 14 x 20, \$5.35; do., 20 x 28, \$10.50; Wasters—S. T. P. grade, 14 x 20, \$4.75; do., 20 x 28, \$9; Abercane grade, 14 x 20, \$4.60; do., 20 x 28, \$8.87½.

Financial.

Although it is yet too early in the year to expect any material revival of business, indications are not wanting that in some respects the situation is improving. The dreaded 1st of January with its settlements is over, and an absence of important failures, which it was feared would mark the occasion, has been a cause of relief to the financial and business community, giving encouraging indications of sounder financial conditions in the business world than were generally apprehended.

The volume of general trade shows no very marked increase, nor indeed could any be expected in the first ten days of the new year. Such reports as are received, however, exhibit a more hopeful tone. The announcements of industries resuming work outnumber those of mills or factories closing down, and although a large proportion of those starting up are resuming on a restricted scale or with reductions in the wages of labor, yet the fact that a number of them are doing so in order to fill the actual demands of trade shows a more healthy movement in business.

Wall street, always inclined to look on the brighter side, has backed its opinion that things are on the mend by a notable advance in the values of securities during the past week. The prices of staples show, too, an advance over those of last week, wheat and cotton being both quoted higher, with gains in export clearances of both products, while corn is firm and fractionally higher. East

bound freight shipments of grain and provisions during the first week of the year were the largest in any one week in the history of the great trunk lines, amounting to 137,383 tons, against 98,893 for the previous week, and 55,383 tons for the corresponding week of 1892. This increase of tonnage is owing to the cut rates, however, and will not involve any actual gain in the earnings of the roads. Railway earnings lately reported show no worse than expected, and the impression prevails that future returns will show a gradual improvement. The reorganization plan for the Erie Railroad, undertaken by Drexel, Morgan & Co., and published at the end of last week, has been well received, and is looked on as a hopeful omen. Some similar settlement for Atchison and other roads in like situation is looked for, the fact that railroad receiverships should not be prolonged being generally appreciated.

It is extraordinary that the condition of the Treasury excites such comparatively little interest. The gold reserve, which was up to \$125,000,000 a little more than a year ago, is now down to \$74,000,000, and is constantly shrinking. Thus the net Treasury deficit for the first half of the current financial year was \$37,665,000, exceeding in six months Secretary Carlisle's estimate of the year's decrease by nearly \$10,000,000. The falling off in customs receipts for the six months ending December 31, 1893, was \$30,744,948, and that in internal revenue \$10,654,191. These features point to a perilous condition of things, for which a remedy should be immediately sought. The New York Chamber of Commerce last week earnestly urged the issue of short time bonds in order to reinforce the Treasury, and this course seems to be the one which would secure the most general approval.

Saturday's statement of the New York Associated banks shows no abatement in the flow of money to this center. The receipts from the interior last week amounted to \$4,800,000, while loans expanded to the extent of \$1,200,700 only. The latter is an unfavorable feature, which proves stagnation in enterprise, for the banks are only too willing to make advances on fair security. The total surplus reserve now held, over legal requirements, by the Associated Banks is \$83,800,000, or \$18,000,000 higher than ever before held. The loan market, in consequence of this glut of idle money, and also of the completion of January payments, displays the greatest ease. Call money is abundant on a basis of 1% @ 1½%, the lower rate being the rule. Time loans are in somewhat better demand, while the supply is even more ample, and the scrutiny of collateral is not so severe. Rates are 2% for 30 @ 60 days, 3% for 90 days to four months, and 3½% @ 4% for six months. Mercantile paper continues in good demand, but the supply of first-class material is very limited, consequently the market is somewhat dull. Rates 3½% @ 4% for indorred bills, 4½% @ 5% for first-class single names, 5% @ 5½% for others.

A sharp rise in values of securities has marked the course of the stock market. The reaction set in during the latter part of last week, and all the sounder and more active issues show a material gain over the prices of a week ago. Several favorable developments have combined to beget a more cheerful feeling in Wall street, and, although the actual investment dealings in stocks continue small and business is still more or less confined to "professional" trad-

ing, yet there are signs of a revival of outside interest. The payment of \$140,000,000 for January interest and dividends in New York, Boston, Philadelphia and Pittsburgh has not, however, induced the usual demand for securities, showing that confidence is still absent.

The market closed on Wednesday dull and irregular, but with all the leading stocks showing an advance on last week's prices. The following list exhibits the extreme fluctuations during the week of several of the leading stocks, with closing prices on January 10:

	High- est.	Low- est.	Closing, Jan. 10.
Am. Sugar Ref.....	84½	77½	81½
Atchison, T. & S. Fe....	12½	11	11½
Balt. & Ohio.....	70	69	69
Chicago Gas.....	66½	61½	65½
Chic., B. & Q.....	77½	73½	74½
Chic., Mil. & St. Paul...	59	55	56½
Chic., Rock Isl. & Pac...	68½	62½	65½
Del. & Hudson.....	136	132	133½
Del., Lack. & Western...	168½	163½	167
Gen. Electric.....	37½	31	36
Lake Shore.....	123	120	122
Louisville & Nashville...	45½	41½	43½
Manhattan.....	134	122	121
Missouri Pacific.....	22	18½	21
National Lead, Common.	26	23½	25½
New Jersey Central.....	116½	113½	115
New York Central.....	98½	96½	98
N. Y., L. E. & Western.	14½	13½	14
N. Y. & New England...	12½	9½	12½
Northern Pacific, Pfd.	18	16½	16½
Philadelphia & Reading...	20	17½	18½
Richmond & West Pt.			
Termi.....	2½	2¼	2¼
St. Paul & Omaha.....	36½	33½	35
Union Pacific.....	19	18	18
Western Union.....	86½	82½	84½

The railway and miscellaneous bond market has been strong and active, with an increased demand for first-class issues. The general business has been well distributed through the list. The market closed, however, somewhat more irregular on Wednesday, with declines in certain lines, notably Reading.

Sterling exchange, which continued low and dull during the greater part of the week, showed increased strength on a larger demand for remittance early in the present week, and posted rates were advanced. Commercial bills were fairly plentiful, while the demand on Wednesday showed some improvement. Actual business was done at the close at \$4 84½ @ \$4.84½ for 60 days, \$4.86½ for demand, \$4.87 for cables and \$4.83 @ \$4.83½ for commercial.

Domestic exchange on New York is quoted as follows: New Orleans, commercial 25 premium, bank 100 premium; Charleston, buying ¼ discount, selling ¼ premium; San Francisco, sight 15, telegraph 20 premium; Savannah, buying ¼ discount, selling par @ ½ premium; Chicago, 75 premium; St. Louis, 80 premium.

Bar silver has advanced in price, being quoted in London at 31½ pence and in New York at 68½¢ per ounce. Some large shipments of the metal have been sent Eastward during the week.

British Iron and Metal Markets.

[Special Cable Dispatch to The Iron Age.]

LONDON, WEDNESDAY, January 10, 1894.

In prices for Pig Tin there has been an almost unbroken downward movement, due chiefly to unfavorable statistical position here and absence of American orders. On Monday the weakness was greatest, when unfavorable advices from the Straits caused sales to have been made at £71. 7/6 for prompts. Speculation is hesitant and

the buying for consumers is slow. At the close the market was quiet with £71. 17/6 quoted for prompts and £72. 15/ for three-months futures.

Copper prices have averaged a shade lower, although there have been signs of better feeling at intervals. Persistent selling by dealers at inactive times caused a decline of 10/, and, although there has been covering of "short" accounts in near positions, the tendency has been mostly in buyers' favor. Both regular operators and speculators are cautiously awaiting developments. Business in furnace material has been very small. At the close the market was flat, with £42. 7/6 quoted for Merchant Bar prompts, £42. 15/ for futures and £45. 10/ @ £46 for Best Selected English.

The market for Tin Plate continues quiet. There are few inquiries and orders are limited. Many American offers refused owing to lowness of limits at which buyers seem disposed to enter large contracts. Exports last month were 23,000 tons against 34,000 tons in December, 1892. The exports to the United States were 14,000 tons and 23,000 tons respectively. Stocks at Swansea, 263,000 boxes. Liverpool quotations were as follows:

IC Charcoal, Alloway grade.....	12/3 @ 12/9
IC Bessemer Steel, Coke finish.....	11/3 @ 11/6
IC Siemens.....	11/6 @ 11/9
IC Coke, B. V. grade, 14 x 20.....	11/3 @ 11/6
Charcoal Terne, Dean grade.....	10/9 @ 11/

Pig Lead prices have been easy at £9. 7/6 for Soft Spanish, and the market is very quiet.

Spelter is weaker, with sellers at £16. 5/ for ordinary Silesian, and the demand moderate.

In the Iron trade there has been little movement apart from moderate fluctuations in prices of warrants and the demand generally is rather slow. December exports of Pig Iron were 47,000 tons, against 46,000 tons same month in 1892. Last transactions in warrants were at 43/2 for Scotch, 35/4 for Cleveland, and 45/3 for Hematite.

Water Resources of the United States.

The investigation of water resources of the United States, which was commenced by the Geological Survey in 1889 with the object of determining the quantity of water available for irrigation of the arid lands of the West, or for use as water power, has now been practically completed. Its results will probably be disappointing to those whose impressions have led them to conclude that the vast stores of water present in our great lakes and larger streams should be ample for the needs of the entire country. The fact is, however, generally overlooked that tracts of barren land still vaster in comparison are removed by such wide distances from these sources of supply as to be entirely cut off from their benefits. In summing up the general situation, as gathered from the surveys, Geologist F. Newell says: "It does not appear probable that even as high as 10 per cent. of the land

now owned by the Government can ever be irrigated. In fact, there is not a sufficient supply of water to bring under cultivation an area equal to that which has passed into the hands of individuals and corporations. There are, however, localities where thousands of acres can be profitably irrigated by the construction of expensive dams and irrigating canals." The most active field of work of the survey was carried on in the drainage basins west of the one-hundredth meridian, as well as in some of the Eastern water sheds. The "runoffs" of the Missouri, Arkansas, Rio Grande and Snake rivers received special attention from the scientists.

THE WEEK.

The Pacific Coast has not escaped the general industrial depression. At Portland, Ore., 63 per cent. of the wage earners of the city are reported as being out of employment at the present time.

A new \$500,000 bridge was opened at Leavenworth, Kan., last week, which will give the city direct communication with Chicago by railroad. The bridge rests on five piers and is 1100 feet in length.

A British statistician has published an elaborate series of calculations which prove that the losses to the United Kingdom, attributable directly or indirectly to the great coal strike of last year, reached by the most conservative estimates the enormous total of \$155,509,832.

Toledo, Ohio, was last week the scene of a \$1,000,000 conflagration. Among the buildings destroyed were the Chamber of Commerce, two large grain elevators and other valuable property.

The London *Times*, in a review of British trade during 1893, says that the English carpet and shoe trades and the Birmingham screw making industry have felt the effects of American competition.

Chicago's city jail is said to contain 52 prisoners awaiting trial on charges of murder.

The landing agent at Ellis Island, New York, gives the number of steerage passengers landed there during last year as 364,700. In the same time 121,829 cabin passengers were landed in the port of New York by the various steamship companies.

The crop estimates of the United States for the year 1893, as just completed by the Department of Agriculture, give the following figures for some of the leading agricultural products:

	Area in acres.	Yield. Bushels.
Corn.....	78,936,465	1,619,496,131
Wheat.....	34,629,418	396,131,725
Oats.....	27,273,033	638,854,850
Barley.....	8,220,371	69,869,485
Potatoes.....	2,605,186	183,034,303
Tobacco.....	702,952	Lbs. 483,023,963
Hay.....	49,613,469	Tons, 65,766,158

The above figures show a falling off from the figures for 1892 in every class of crop.

Herculean efforts are being put forth in New York City to meet the prevailing distress among the poor. The improvements decided on on the North River front and in Central Park are to be hastened, in order to afford work for the unemployed. Similar arrangements are being made by the municipal governments of other large cities where the distress is most acute; and the organ-

ized benevolence of private citizens is strained to the utmost to meet the pressing calls upon their charity. It is a hard winter, truly, for the majority.

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HARDWARE.

Condition of Trade.

IT IS as yet too early in the year to expect a marked improvement in the volume of the trade or business, but it is pleasant to note the active preparations which are being made for the trade of the coming months, and the disposition to take a cheerful view of things. Reports indicate that mills and factories are starting up, showing not only that the manufacturers are preparing for business, but are giving employment to operatives and thus setting in motion the wheels of trade in many diversified fields. Travelers are also being sent out, as jobbers and manufacturers are desirous of securing orders, thus contributing their part toward the resumption of normal activity. It is, of course, too early as yet for them to be sending in many orders, but we are advised that they are beginning to be heard from and in a fairly satisfactory manner. Notwithstanding the complaints which were made of trade in the past year, and especially of the last half, it is pleasant to note that the volume of business in many cases is reported as comparing favorably with ordinary years, and a great majority of concerns are doubtless in a position to push energetically for success in the year on which we have entered. It is also an excellent sign that there is a disposition to take a cheerful view of the situation, and while not entertaining unreasonable expectations in regard to the volume of business for the next month or two, the trade are disposed to avail themselves of the opportunities presented and to move with enterprise in the prosecution of their interests. This is certainly not the time for reckless expansion or speculative buying or for the abandonment in any way of the careful, conservative policy which has characterized the trade for some months, but it is desirable that the trade at large should contribute their part and do what they can in the direction of promoting the general prosperity. To this end it will be well for the jobbing trade in their larger purchases and for the retail trade, whose orders, though separately small,

aggregate an enormous volume, to avoid the mistake of undue caution, and begin to buy more freely. It would seem that the time has come for the merchants who are in a financial condition to do so to replenish assortments which have become too much depleted and broken, and for each to cultivate his own field, whether it be large or small, so that goods may soon be moving with old time freedom.

Chicago.

(By Telegraph.)

Some of the jobbing houses now have their salesmen out on the road and are feeling rather encouraged by the orders thus early received for seasonable goods for spring delivery, such as Screen Doors, Wire Cloth and other articles in the same category. The retailers are reported to be carrying very light stocks of all classes of goods, but are buying only to the extent of their immediate wants. Wire Cloth seems to be in considerably better condition than last year at this time. The price was then \$1.35, but is now \$1.50 on small lots or \$1.45 for 25 rolls and upward. Manufacturers of Wire Cloth have adopted a new policy, and now only allow the Chicago rate of freight. Last year they delivered to the Missouri River. This change places Chicago jobbers in a better position for the Western trade. Collections are good and money seems to be more plentiful among retailers. Heavy Hardware jobbers report better inquiries from their customers, but the volume of business is still light. They consider prospects encouraging for a better trade in a short time.

St. Louis.

(By Telegraph.)

The Hardware jobbers report a good outlook for the month of January. Traveling men are nearly all out on the road, and while it is a little too early to hear from them a good trade is expected. Jobbers are not purchasing heavily, however, and continue the policy of hand-to-mouth buying, which they adopted some time since. Shelf goods are being ordered in good quantities, and a large trade in Heavy Hardware is also reported. Wire Nails are being sold very low, and Barb Wire is also weaker than last reported.

Philadelphia.

"Ring out the old year. Ring the new year in."

SUPPLEE HARDWARE COMPANY—The year 1893 will long be remembered, especially by those who were in trade or commerce, and by those

15,500 firms who have succumbed largely to the result of bad and experimental legislation. To this number of failures it has left its bad and ugly scars. Some with ruined reputations and fortunes; some whose light but dearly earned savings have been swept away; others who have for years successfully managed to provide for the maintenance of their families, but are now enrolled upon the list of the unemployed; others who have never before known idleness for themselves or want for their families, find themselves enrolled upon the list of charitable contributions.

How lightly one is liable to glance over the reports of daily failures, and how slight are the impressions made upon one's mind unless we are financially or personally interested; but how keenly the blow is felt by the sufferers we never fully realize, and only partially realize when closely related financially or personally; but if you enter the counting house of some of those who have suffered and see the haggard looks and hear the trembling voices of the victims, these you can see and hear, but you cannot enter the recesses of the hearts and minds of the sufferers, neither can you understand the agony of those who have heretofore held up their heads as honorable toilers, but are now enrolled as receivers of charity's funds, and who daily receive food to keep their families alive.

Oh, would it were possible for instantaneous photographs to cover the walls of the luxurious apartments of those legislators whose hearts are hardened to all else but selfish and political motives! Would that the hours spent in luxury in their apartments could be spent only in seeing a moving panorama of their victims, and their sleeping hours be disturbed by the impressions made! We might then have some sensible legislation in the future.

Curiosity induced the writer to refer to the article written for *The Iron Age* by our firm in December, 1892. Reference to it might be instructive, written as it was at the end of the most prosperous year this country ever experienced, and compared with the disastrous results of 1893.

We will not at this writing sum up detailed results for the reader, but the mercantile agencies estimate the failures at an excess of 50 per cent. and the liabilities 400 per cent. greater for the year 1893 than the year 1892. These do not include bank suspensions or failures.

Trade during the last two weeks of the year was of small dimensions. The only conspicuous feature of those two weeks was the large number of fakirs scattered upon the streets over our city, calling out their wares, and while they succeeded in collecting large numbers of men, women and children, their stock in trade did not perceptibly diminish. Crowds of men and women walked aimlessly along the streets gazing in windows, but their purchases were small in comparison to those made in recent years.

But let us for the present pass over the past. Would there might be no occasional unpleasant reminder from this out.

Inventories have, as a rule, been completed. Footings of the same cannot improve the situation. Prices, as a rule, have been established for the new year and salesmen are being prepared for the road.

Now, if all manufacturers and merchants will close their eyes, so far as possible, to the past, with a determination to vigorously make the effort for the future, then each one can perform his part toward restoration of trade.

The starving of stocks is not one of the essentials to trade restoration. There is a large amount of money which at present is bringing no interest, but lying idly in bank vaults.

The production of the soil has not deteriorated and the product can be sold in this country or find purchasers for distant markets at some prices. Small profits must be accepted for the present. Wages must naturally be lower, but low wages are far better than idleness. Manufacturers may be compelled to resume temporarily without a fair return upon their investment, but far better than continue with closed works, which must depreciate machinery during idleness.

If each will put his shoulder intelligently to the wheels of industry we will the sooner pass over the ruts that have disturbed our paths.

It is too early in the year to expect any perceptible improvement in trade or collections, but, as a rule, salesmen who are preparing themselves for the year have hopes for the future.

Notes on Prices.

Wire Nails.—There are evidences of a slight quickening in the demand for Wire Nails, and a fair number of orders are being received by the manufacturers from both the larger and the smaller trade. A new year having been entered upon, and the business of 1893 closed, there is a disposition to prepare for future business, and the trade are accordingly replenishing their stocks. The mills are pursuing a conservative policy and avoiding undue accumulation of Nails, some of them being stopped for the present and others diminishing their output considerably. Prices remain as at the last report, the market being represented by the quotation of \$1.10 for carload lots at mill, a figure from which a concession of 5 cents is sometimes made on attractive orders. Small lots from store are held at \$1.35 to \$1.40.

Chicago, by Telegraph.—It would appear that \$1.15 Chicago is now the bottom price on factory lots of Wire Nails. The manufacturers who have been disturbing the market by low offers for spot cash made no impression, and as quite a number of factories are shut down, the others are able to maintain their prices. The active companies are well supplied with orders and are in receipt of steady inquiries, which promises considerably better business in the near future. They are quoting \$1.20 Chicago on ordinary lots. Jobbers report a growing demand for carload lots of Wire Nails from their customers. They are discouraging this business, however, as they do not think it good policy to overstock the retail trade. They quote, in a regular way, \$1.30 to \$1.35 for small lots from stock.

Cut Nails.—The Cut Nail manufacturers are in general adhering to the low prices with which December closed, the quotation of 90¢ in carload lots at mill being a representative one, from which concessions are made in some cases. The demand is only moderate, but some orders are being received. Small lots from store, in New York, are held at \$1.20 to \$1.25.

Chicago, by Telegraph.—An improved demand is noted for Cut Steel Nails and manufacturers are pleased at the receipt of orders from sections which have for some time been handling Wire Nails exclusively. They expect to sell more Cut Nails this year than last. Prices on factory lots are maintained at \$1.15 to \$1.20, Chicago. Small lots from stock are quoted at \$1.25.

Barb Wire.—The Barb Wire market is in substantially the same condition as at our last report. The demand is moderate and prices are somewhat uneven. Galvanized Four Point may be quoted regularly at \$2.05 at mill, with 5 cents off in carload lots. Painted at mill is held at \$1.65, with 5 cents off in carloads.

Chicago, by Telegraph.—The Barb Wire trade is rather quiet in this immediate section, but heavy business is reported to be under way in the Southwest and especially in the Indian Territory. Prices of carload lots of Galvanized are \$2.25 to \$2.30, Chicago, while jobbers ask \$2.40 for small lots from stock.

Curry Combs.—The American Curry Comb Company, Troy, N. Y., and 33 Chambers street, New York, have issued a supplement to be attached to their catalogue of January 1, 1893. It represents a number of recent additions to their line of Curry Combs, illustrations of which are given. The company have also been issuing revised quotations on their entire line.

Bright Wire Goods.—The market for Bright Wire Goods continues an open one, with a decidedly active competition between the different manufacturers. As a result, prices have been crowded down until they have reached a figure which is referred to as lower than the goods have previously touched.

Padlocks.—The market in Padlocks, which for some time has been comparatively regular, prices being on the whole pretty well maintained, is at present in a somewhat unsettled condition. Two of the leading manufacturers, as mentioned below, have issued revised lists which at the new discounts make a somewhat lower price on many of the leading numbers. The changes in price are to be accounted for by the fact that there is active competition among the makers of this line of goods, and some manufacturers who are not making a full assortment of Padlocks are energetically competing for trade on the numbers which they make. The two lists printed below are, it will

be observed, in substantial agreement, but the market on the whole is somewhat unsettled.

The Mallory-Wheeler Company, New Haven, Conn., and 64 Reade street, New York, under date of January 1, have issued the following revised list of Padlocks, which is subject to a discount of 75 per cent., net cash 30 days:

Wrought Iron Tumbler Padlocks.			
Without Chain.			
No.	Size. Inch.	1 key. Per dozen.	2 keys. Per dozen.
00000	2	\$1.75	\$2.00
00000	2	1.70	1.90
0000	2 1/4	2.50	2.90
000	2 1/4	3.00	3.50
00	2 1/4	3.25	3.75
0	2 1/2	3.75	4.25
1	2 1/2	4.25	4.90
2	2 1/2	4.50	5.40
3	2 1/2	5.10	6.25
4	2 1/2	5.35	6.50
5	2 1/2	6.75	8.00
6	2 3/4	8.00	9.25
7	3	9.25	11.00
8	3 1/2	6.25	7.50
9	3	7.00	8.15
10	3 1/4	9.50	10.75
11	4	15.00	18.75
15	2 1/2	15.00	16.50
18	2 1/2	13.50	15.00
19	2 1/4	25.00	28.00
20	3	12.50	13.65
80	3	5.00	6.25
1000	2 1/4	5.25	7.50
1001	2 1/2	11.00	13.00
1002	2 1/2	8.00	10.00
1003	2 1/2	7.50	9.50
1004	2 1/2	7.75	10.00
1005	2 1/2	6.70	8.20
1006	2 1/2	11.70	13.70
1007	3 1/4	9.00	10.50
1008	3	12.50	14.50
1009	3 1/4	8.00	9.50
1010	2 1/2	8.75	10.75
1011	2 1/2	7.95	9.45
1012	2 1/2	8.75	10.25
1013	3	7.50	9.00
1015	2 1/4	9.50	11.00
1016	2 1/4	8.25	9.85
1017	2 1/4	10.00	11.50
1018	3	6.70	7.65
1019	2 1/2	11.00	12.50
1020	2 1/2	8.75	10.50
1021	2 1/2	5.00	5.75
1022	2 1/2	5.50	6.25
1023	2 1/2	5.25	6.50
1024	2 1/2	6.80	8.10
1025	2 1/2	4.75	6.00
1026	2 1/2	6.00	7.00
1027	2 1/2	7.00	8.00
1028	2 1/2	5.45	6.45
1029	2 1/2	6.70	7.70
1030	2 1/2	7.10	8.10
1031	2 1/2	8.35	9.60
1033	2 1/2	9.20	10.45
1034	2 1/2	11.70	12.95
1035	2 1/2	14.20	15.45
1036	2 1/2	3.40	4.40
1037	2 1/2	10.00	11.25
1038	3	12.00	13.25
1039	3	12.50	14.00
1040	3 1/4	12.10	13.35
1041	2 1/2	6.70	7.95
1043	2 1/2	9.00	10.25
1047	2 1/2	4.75	6.00
1048	2 1/2	5.75	7.00
1050	2 1/2	6.25	7.25
1052	2 1/2	7.10	8.35
1053	2 1/2	8.25	9.25
1054	2 1/2	9.60	10.85
1055	2 1/2	7.75	9.00
1056	2 1/2	8.35	9.60
1057	2 1/2	8.00	9.25
1058	2 1/2	8.60	9.85
1059	2 1/2	6.75	7.75
1061	2 1/2	7.00	9.00
1062	2 1/2	5.75	6.75
1063	2 1/2	6.00	6.75
1064	2 1/2	8.35	10.35
1065	3	10.00	12.50
1066	2 1/2	8.35	10.85
1067	2 1/2	10.45	11.70
1076	2 1/2	5.50	7.50
1077	2 1/2		
With Chain.			
12	2 1/2	16.00	17.25
13	2 1/2	18.00	19.25
14	2 1/2	8.35	9.30
16	2 1/4	4.90	5.40
17	2 1/2	7.75	8.90
1014	2 1/2	15.00	16.50
1032	2 1/2	9.20	10.20
1042	2 1/2	9.25	10.75
1044	2 1/4	8.75	10.00
1045	2 1/2	10.45	11.70
1046	2 1/2	11.25	12.75
1049	2 1/2	7.00	8.25
1051	2 1/2	7.25	8.50
1060	2 1/4	8.00	9.00
1068	2 1/2	5.75	6.50
1069	2 1/2	9.10	15.75
1070	2 1/2	10.50	12.50
1071	2 1/4	12.10	13.35
1072	2 1/2	10.00	11.25
1073	2 1/2	11.00	12.25
1074	2 1/2	10.25	11.50
1075	2 1/2	11.00	12.25

Scandinavian Padlocks.

Without Chain.

No.	1 key. Per dozen.	2 keys. Per dozen.
2010	\$6.00	\$7.00
2011	6.85	7.85
2012	8.00	9.25

With Chain.

No.	1 key. Per dozen.	2 keys. Per dozen.
2050	7.70	8.70
2051	9.35	10.35
2052	10.50	11.75

Bronze Scandinavian Padlocks.

Without Chain.

No.	1 key. Per dozen.	2 keys. Per dozen.
2110	19.00	10.00
2111	21.00	22.00

With Chain.

No.	1 key. Per dozen.	2 keys. Per dozen.
2150	21.50	22.50
2151	23.50	24.50

Bronze Padlocks.

With Brass Keys.

Without Chain.

No.	Size. Inch.	1 key. Per dozen.	2 keys. Per dozen.
209	1 1/8	\$17.00	\$19.00
211	1 1/8	19.50	21.50
213	1 1/8	22.00	24.00
229	1 1/8	19.50	21.50
231	1 1/8	22.00	24.00
233	1 1/8	24.50	26.50

With Chain.

No.	Size. Inch.	1 key. Per dozen.	2 keys. Per dozen.
409	1 1/8	21.00	23.00
411	1 1/8	23.50	25.50
413	1 1/8	26.00	28.00
429	1 1/8	23.50	25.50
431	1 1/8	26.00	28.00
433	1 1/8	28.50	30.50

With Nickel Plated Flat Steel Keys—Revolving Bushing.

Without Chain.

No.	Size. Inch.	1 key. Per dozen.	2 keys. Per dozen.
239	1 1/8	18.00	20.00
241	1 1/8	20.50	22.50
243	1 1/8	23.00	25.00
249	1 1/8	20.50	22.50
251	1 1/8	23.00	25.00
253	1 1/8	25.50	27.50

With Chain.

No.	Size. Inch.	1 key. Per dozen.	2 keys. Per dozen.
439	1 1/8	22.00	24.00
441	1 1/8	24.50	26.50
443	1 1/8	27.00	29.00
449	1 1/8	24.50	26.50
451	1 1/8	27.00	29.00
453	1 1/8	29.50	31.50

Brass Padlocks.

No.	Size. Inch.	1 key. Per dozen.	2 keys. Per dozen.
30	2 1/2	20.50	22.50
60	2 1/2	30.00	32.00
90	2 1/2	28.50	30.50
100	2 1/2	18.50	20.50
130	2 1/2	48.00	49.25

Small Padlocks.

Brass and Nickel Plated.

No.	Size. Inch.	Price per dozen.	No.	Size. Inch.	Price per dozen.
38	3/4	\$4.50	48	3/4	\$5.75
39	1 1/8	5.50	49	1 1/8	6.75
40	1 1/8	4.50	51	1 1/8	5.75
41	1 1/8	4.50	52	1 1/8	5.75
42	1 1/8	5.00	53	1 1/8	6.25
43	1 1/8	5.50	54	1 1/8	6.75
44	1 1/8	6.00	55	1 1/8	7.25
45	1 1/8	6.50	56	1 1/8	7.75

With Flat Steel Keys.

Self Locking Spring Shackle and Revolving Key Bushing.

No.	Size. Inch.	Price per dozen.	No.	Size. Inch.	Price per dozen.
140	5/8	\$4.50	151	5/8	\$5.75
141	3/4	4.50	152	3/4	5.75
142	1	5.00	153	1	6.25
143	1 1/8	5.50	154	1 1/8	6.75
144	1 1/8	6.00	155	1 1/8	7.25
145	1 1/8	6.50	156	1 1/8	7.75

Padlocks in Sets.

With Master Key.

No.	Size. Inch.	In sets of 4. Per set.	In sets of 6. Per set.	In sets of 12. Per set.
5	2 1/2	\$2.25	\$3.20	\$5.85
6	2 1/2	2.60	3.65	6.75
7	2 1/2	2.75	3.85	7.20
8	3	3.80	5.15	9.75
9	2 1/2	2.60	3.65	6.75
10	3	2.85	4.00	7.20
11	3 1/4	3.45	5.25	10.00
17	2 1/2	3.10	4.40	8.25
18	2 1/2	6.00	8.40	16.00
19	2 1/2	5.50	7.75	14.50
20	3	9.35	13.50	26.00
80	8	4.70	6.75	18.00
1000	2 1/2	2.20	3.00	5.50
1002	2 1/2	4.20	6.00	11.50
1004	2 1/2	3.50	4.75	8.50
1005	2 1/2	3.60	4.90	8.75
1006	2 1/2	3.25	4.35	7.75
1007	3 1/4	4.90	6.85	12.50
1008	3	3.50	5.00	9.00
1009	3 1/4	5.20	7.25	13.00
1010	2 1/2	3.20	4.50	8.00
1012	2 1/2	3.20	4.50	8.00
1013	3	3.45	4.90	9.00
1015	2 1/2	3.00	4.25	7.50

1016	2 1/4	3.70	5.25	...
1017	2 1/4	3.80	4.80	...
1018	2 1/4	3.85	5.50	...
1025	2 1/4	2.70	3.80	...
1035	2 1/4	4.90	6.85	12.70
1036	2 1/4	5.75	8.10	15.20
1038	2 1/4	3.85	5.25	...
1039	2 1/4	4.50	6.50	...
1040	3	4.70	6.75	...
1041	3 1/4	4.55	6.55	...
1042	2 1/4	3.60	4.80	...
1056	2 1/4	3.10	4.40	8.25
1057	2 1/4	3.30	4.70	8.85
1058	2 1/4	3.45	...	...
1059	2 1/4	3.90	...	...
1062	2 1/4	2.85	...	...
1065	2 1/4	3.80	5.20	9.35
1066	3	2.85	5.50	...
1067	2 1/4	3.80	4.95	...
1069	2 1/4	4.20	5.75	10.50
1070	2 1/4	4.50	6.25	11.50
1071	2 1/4	4.55	6.55	...
1072	2 1/4	3.85	5.50	10.50
1073	2 1/4	4.20	6.00	11.50
1074	2 1/4	4.45	...	...
1075	2 1/4	4.70	...	...
1076	2 1/4	4.00	5.75	...

Sargent & Co., New Haven, Conn., and 37 Chambers street, New York, have issued under date January 1 the following revised list on Padlocks, which is subject to a discount of 75 per cent., net cash:

No.	One key.	Two keys.	No.	One key.	Two keys.
20	\$4.50	\$5.20	344 C	9.50	11.75
21	4.50	5.20	345	7.75	10.00
22	5.00	5.65	345 C	10.50	12.50
23	5.50	6.15	346	6.25	7.50
24	6.00	6.70	347	6.70	7.65
25	6.50	7.15	347 C	8.35	9.30
30	4.50	5.20	348	8.35	10.35
31	4.50	5.20	349	10.00	11.50
32	5.00	5.65	349 C	15.00	16.50
33	5.50	6.15	352	5.25	6.50
34	6.00	6.70	355	6.25	7.50
35	6.50	7.15	356	8.00	10.00
60	5.75	6.40	357	9.00	11.00
61	5.75	6.40	358	8.75	10.75
62	6.25	6.95	361	6.70	8.70
63	6.75	7.40	363	8.25	10.35
64	7.25	7.95	365	6.75	8.00
65	7.75	8.40	366	12.00	13.25
70	5.75	6.40	369	14.50	15.75
71	5.75	6.40	369 C	17.00	18.25
72	6.25	6.95	385	6.70	7.70
73	6.75	7.40	386	7.10	8.10
74	7.25	7.95	386 C	9.20	10.20
75	7.75	8.40	401	6.70	7.40
100	1.70	1.90	402	7.75	9.00
120	1.75	2.00	402 C	10.00	11.25
122	3.00	3.70	403	8.00	9.25
190	2.50	2.90	403 C	10.25	11.50
200	2.50	2.90	404	8.35	9.60
201	3.00	3.50	405	8.25	9.25
202	3.25	3.75	405 C	10.45	11.45
202 C	4.90	5.40	406	8.35	9.60
203	3.75	4.50	406 C	11.00	12.25
203 C	5.75	6.50	407	8.60	9.85
204	5.00	6.25	407 C	11.00	12.25
208	6.00	8.00	408	9.20	10.45
215	5.45	6.45	409	9.60	10.85
216	6.25	7.25	409 C	11.25	12.50
216 C	8.40	9.00	411	8.35	9.85
218	5.75	6.75	435	15.00	16.50
222	6.25	7.30	502	18.50	20.50
223	6.70	7.95	605	8.00	9.25
232	7.10	8.35	607	10.00	11.25
232 C	8.75	10.00	607 C	12.10	13.35
301	3.75	4.25	702	7.00	8.15
302	4.25	4.90	703	7.60	8.75
303	4.50	5.40	705	9.00	10.50
304	5.50	6.75	706	8.75	10.25
305	6.50	8.50	708	10.00	12.50
307	7.10	9.10	709	10.85	12.10
312	4.75	6.00	715	9.25	11.00
313	5.00	6.75	716	12.50	13.65
315	5.10	6.25	717	12.50	14.00
316	6.35	8.50	718	10.00	11.50
316 C	7.75	8.90	719	12.00	13.25
317	8.00	11.00	815	9.50	10.75
318	6.00	6.75	816	11.70	13.70
319	8.35	10.00	818	12.10	13.35
321	4.75	6.00	819	12.50	14.50
321 C	7.00	8.25	855	15.00	16.75
325	5.75	7.00	982	...	7.00
325 C	7.25	8.50	982 C	...	8.70
335	6.60	8.10	983	...	20.00
335 C	9.25	10.75	983 C	...	7.35
336	7.00	8.50	983 C	...	10.35
342	6.70	8.20	983 P	...	22.00
343	8.35	10.85	984	...	9.25
344	7.50	9.50	984 C	...	11.75

Padlocks in Sets.

With Master Key.

No.	Sets of 4. Per set.	Sets of 6. Per set.	Sets of 12. Per set.
204	\$2.20	...	...
208	2.50	...	...
307	2.40	\$4.00	...
316	2.25	3.20	...
316 C	3.10	4.40	...
317	3.50	5.00	\$9.50
335	2.70	3.80	...
335 C	3.60	4.90	...
336	3.00	4.25	...
344	3.50	4.75	8.50
344 C	4.20	5.75	10.50
345	3.60	4.90	8.75
345 C	4.50	6.25	11.50
346	2.60	3.65	...
348	3.40	5.20	9.35
356	3.65	5.00	...

358	3.75	5.20	...
361	3.10	4.20	7.55
363	4.05	5.65	10.45
365	2.60	3.65	...
366	5.00	7.00	13.00
401	2.60	3.65	...
402	3.10	4.40	...
402 C	3.85	5.50	...
406	3.30	4.70	...
406 C	4.20	6.00	...
435	6.00	8.50	16.00
605	2.75	3.85	7.20
702	2.85	4.00	...
705	3.50	5.00	...
706	3.45	4.90	...
708	2.85	5.50	13.20
715	3.61	5.15	...
716	4.70	6.75	...
717	4.70	6.75	...
718	3.85	5.50	...
719	4.50	6.50	...
815	3.45	5.25	...
816	4.90	6.85	...

Sheet Zinc.—Revised quotations on Sheet Zinc have been issued by the Matthiessen & Hegeler Zinc Company, La Salle, Ill., under date January 1. The price of \$4.50 per 100 pounds is announced for Sheet Zinc in 600-pound casks of the thicknesses between Nos. 9 and 15, inclusive, of the widths between 32 and 46 inches, and of the lengths between 84 and 90 inches. The following are the extras in cents per 100 pounds:

	Nos.	5	6	7	8	9	10	11	12	13	14	15
32	x 84	55	35	20	05							
40	x 84											
40	x 10					none	none	none	none	none	none	none
46	x 90											
52	x 84			170	70	60	50	35	35	35	35	40
50	x 84			110	55	40	25	15	15	15	20	20
48	x 108			90	65	55	35	15	15	15	20	20
48	x 96			75	35	30	15	15	15	15	15	15
48	x 84	190	100	60	20	15	05	05	05	05	05	05
36	x 108	120	105	55	30	25	15	15	15	15	15	15
36	x 96	100	50	30	20	15	05	05	05	05	10	10
30	x 84	80	50	40	20	10	10	10	10	10	10	10
28	x 84	90	60	45	25	20	20	20	20	20	20	20
26	x 84	105	70	55	30	25	20	20	20	20	20	20
24	x 84	115	80	65	15	10	05	05	05	05	05	05

In casks of 100 pounds of the usual numbers 30 cents extra per 100 pounds is charged and other charges for small lots are as before. The following revised discounts are announced :

Discounts.	First Class 15 600-pound casks, and upwards	Second Class. 10 to 14 600- pound casks.	Third Class. 5 to 9 600- pound casks.	Fourth Class. Under 5 600- pound casks.
Special.....	8 per cent.	8 per cent.	8 per cent.	8 per cent.
Cash with order.....	3 "	3 "	3 "	3 "
Quantity.....	14 "	13 "	12 "	11 "

All discounts are computed straight when money accompanies the order. The quantity discount is added to the special discount in all cases. If remittance is received within ten days of date of invoice the cash discount will be only 2 per cent. instead of 3 per cent. and not computed straight. Each order is strictly subject to the quotation of the class to which it belongs.

Hammers, Hatchets, &c.—We give below revised discounts announced by Fayette R. Plumb, Philadelphia, applying to his catalogue of 1892 and supplement No. 1. It will be of interest as showing the extensive line of goods which he is manufacturing and the discounts at which they are sold :

Hammers, "Artisans' Choice," Octagon Pattern Adze Eye Nail.....	40 and 5
Hammers, "Artisans' Choice," A. E. B. F. and A. E. Nail.....	40 and 5
Hammers, Adze Eye and Adze Eye Bell Face Nail.....	40 and 12½
Hammers, Plain Eye Nail.....	40 and 12½
Hammers, Vulcan Tool Company's Adze Eye Nail.....	50 and 10
Hammers, Vulcan Tool Company's Plain Eye Nail.....	50 and 10
Hammers, Quaker City Mfg. Company's Adze Eye Nail.....	50
Hammers, Brad.....	50
Hammers, Carpet.....	50
Hammers, All Adze Eye Farriers' and Plain Eye and English Farriers'.....	50 and 10
Hammers, "Tinners' Favorite" Riveting and Paneing.....	50 and 10
Hammers, "Tinners'" Riveting and Paneing.....	50 and 10

Hammers, Adze Eye Riveting.....	60
Hammers, Plain Eye Riveting.....	60
Hammers, Engineers'.....	60
Hammers, Blacksmiths' Hand.....	60
Hammers, Coopers'.....	60
Hammers, Chipping.....	60
Hammers, Prospecting.....	50 and 10
Hammers, Carriage Ironers'.....	50 and 10
Hammers, Machinists' Round Pattern.....	60
Hammers, "Mechanics' Pride," Octagon Pattern Ball Pein.....	60
Hammers, Machinists', Octagon Pattern.....	60 and 10
Hammers, Horseshoe Turning.....	50
Hammers, Shoe.....	40 and 10
Hammers, Bill Posters'.....	40 and 10
Hammers, Brick.....	40 and 12½
Hammers, Cornice Makers'.....	40 and 12½

Hammers, Belgium and Cobble Pavers'.....	40 and 12½
Picks, Prospecting.....	40
Hatchets, S. C. S., Shingling, Half, Claw and Lath.....	40 and 7½
Hatchets, S. C. S., Broad.....	40 and 7½
Hatchets, "A. E. B. P. Shingling and Half.....	40 and 7½
Hatchets, S. C. S., Boston Pattern Lathing.....	40 and 7½
Hatchets, S. C. S., Underhill Pattern Lathing.....	40 and 7½
Hatchets, S. C. S., A. E. B. P. Lathing.....	40 and 7½
Hatchets, S. C. S., Chicago Pattern Lathing.....	40 and 7½
Hatchets, S. C. S., Philadelphia Pattern Lathing.....	40 and 7½
Hatchets, S. C. S., Fireman's.....	40 and 7½
Hatchets, S. C. S., Ice.....	40 and 7½
Hatchets, Shingling and Half.....	40 and 7½
Hatchets, Claw and Lathing.....	40 and 7½
Hatchets, Barrel and Broad.....	40 and 7½
Hatchets, Vulcan Tool Company's Shingling and Half.....	50 and 5
Hatchets, Vulcan Tool Company's Claw and Lath.....	50 and 5
Hatchets, Vulcan Tool Company's Broad.....	50
Hatchets, Warehouse.....	40 and 7½
Axes, Boys and Hunters'.....	40 and 7½
Hatchets, Broad, Ohio Pattern.....	40 and 7½
Hatchets, Pennsylvania or Pittsburgh Pattern.....	40 and 7½
Axes, Broad, Western Pattern.....	40 and 7½
Hatchets, "New Orleans Pattern.....	40 and 7½
Hatchets, Canada.....	40 and 7½
Hatchets, Ship.....	40 and 7½
Adzes, Carpenters'.....	40 and 7½
Adzes, Railroad.....	40 and 7½
Adzes, Ship Carpenters'.....	40 and 7½
Hooks, Bush, Axe Handle, Auckland and Two Ring.....	40 and 10
Cleavers and Choppers, Wrapped Iron Handles.....	40
Cleavers and Choppers.....	40
Axes, Butchers', German Pattern.....	40
Cleavers, Butchers', German Pattern.....	40
Beef Splitters.....	40
Hammers, Drilling or Striking, Extra Tool Steel.....	70 and 10
Hammers, Drilling or Striking.....	75 and 15
Hammers, Hand Drilling and Stone Cutters'.....	75 and 10
Hammers, Napping.....	75 and 10
Hammers, Macadamizing.....	75 and 10
Sledges, Stone.....	75 and 15
Hammers, Stone Breaking.....	70
Axes, Stone.....	70

Hammers, Spalling or Stone.....	75 and 15
Hammers, "Vulcan Tool Company's.....	80
Reels, Masons'.....	75 and 10
Hammers, Masons'.....	75 and 10
Hammers, Sorting.....	70 and 10
Hammers, Bush, with Leaves.....	60
Hammers, Vulcan Tool Company's Drilling or Striking.....	80
Sledges, Vulcan Tool Company's Stone.....	80
Hammers, Blacksmiths'.....	75 and 15
Hammers, Horseshoe, Turning and Coal.....	75 and 15
Sledges, Vulcan Tool Company's Blacksmiths'.....	80
Hammers, Blacksmiths' Hand.....	75 and 10
Hammers, Boiler Makers'.....	60 and 10
Anvils, Plow.....	60 and 10
Swedges, Fullers, Flatters and Hardies.....	70 and 5
Set Hammers, Creasers and Punches.....	70 and 5
Heading Tools and Pritchels.....	70 and 5
Pincers.....	60 and 5
Buttress, Nippers and Extra Heavy Pincers.....	50
Button Sets.....	70
Tongs, Straight and Curved Lip.....	60
Tongs, Special Patterns.....	50
Drivers, Coopers'.....	50
Chisels, Blacksmiths' Cold and Hot.....	70
Rock Drill Sharpening Tools.....	70
Chisels, Hand Chipping and Cape.....	50 and 5
Pitching Tools and Points.....	50 and 5
Chisels, Stone Cutters' and Brick.....	50 and 5
Wedges, Falling.....	80
Hammers, Oregon Pattern.....	75
Hammers, Vulcan Tool Company's.....	75
Wedges, Truckee Pattern.....	60 and 20
Hammers, Vulcan Tool Company's, Truckee Pattern.....	70
Wedges, Quaker City Mfg. Company's.....	60 and 15
Hammers, Stone.....	70
Hammers, Coal.....	75
Plugs and Feathers.....	50 and 10
Wedges, Saw.....	60 and 20
Mauls, Wood Choppers', Oregon Pattern.....	75
Hammers, Vulcan Tool Company's, Oregon pattern.....	75 and 15
Mauls, Wood Choppers, Washington pattern.....	75 and 15
Mauls, Wood Choppers, Straight Cut.....	75 and 15
Hammers, Ship.....	75 and 10
Hammers, Railroad.....	75 and 15
Hammers, Vulcan Tool Company's, Railroad.....	80
Punches, Railroad Track.....	70
Chisels, Railroad Track.....	70
Rail Tongs.....	60
Forks and Wrenches.....	50
Crowbars, Pinch and Wedge Point.....	60 and 20
Bars, Railroad Tamping and Lining.....	60 and 10
Hammers, Railroad Claw.....	60 and 20
Picks, Boiler and Mill.....	40
Hammers, Quarry.....	75 and 5
Hammers, Stone.....	7 and 5
Hammers, Railroad.....	60 and 10
Hammers, V Tamping.....	60 and 10
Hammers, T.....	60 and 10
Hammers, Ore.....	60 and 10
Hammers, Contractors'.....	60
Hammers, Surface.....	60 and 10
Hammers, Drifting.....	60 and 10
Hammers, Pole.....	60 and 10
Hammers, Common Eye, Coal.....	60
Hammers, Adze Eye, Coal.....	60
Mattocks, Long and Short Cutter.....	60 and 10
Mattocks, Light Pattern.....	60 and 10
Mattocks, Pick.....	60 and 10
Hammers, Asphalt.....	60 and 10
Hammers, Grub.....	60 and 5
Hammers, Southern Pattern.....	60 and 5
Froes, Coopers.....	50 and 5
Picks, Railroad, solid cast steel.....	60 and 10
Hammers, V Tamping, solid cast steel.....	60 and 10
Picks, Railroad, T Tamping, solid cast steel.....	60 and 10
Picks, Surface, solid cast steel.....	60 and 10
Hammers, Drifting.....	60 and 10
Hammers, Pole.....	60 and 10
Hammers, Common Eye, Coal, solid cast steel.....	60
Picks, Adze Eye, Coal, solid cast steel.....	60
Eyes, Pick, Railroad and Tamping.....	60 and 10
Hammers, Surface and Drifting.....	60 and 10
Stakes, Cornice Makers'.....	50
Hammers, Assorted Nail, Farriers' and Riveting (Supplement No. 1).....	40 and 12½
Hatchets, Nickel Plated Octagon Pole (Supplement No. 1).....	40 and 12½
Hatchets, Nickel Plated Octagon Pole (Supplement No. 1).....	40 and 12½
Hatchets, Silver Bronzed Octagon Pole (Supplement No. 1).....	40 and 12½
Hatchets, Silver Bronzed Octagon Pole (Supplement No. 1).....	40 and 12½

Sidney Shepard.

AS ANNOUNCED in a recent issue, Sidney Shepard, whose portrait we present herewith, died at his residence at New Haven, Oswego County, N. Y., on the morning of December 26. Mr. Shepard was among the oldest and most prominent citizens of Buffalo, he having moved to that city in the spring of 1836, when he was 22 years of age. The business which he started then has since developed into the present houses of Sidney Shepard & Co. of Buffalo, and C. Sidney Shepard & Co. of Chicago.

Mr. Shepard was born at Cobleskill, Schoharie County, N. Y., September 28, 1814. He was descended from Ralph Shepard, who came to this country from England in 1635, while on the maternal side his ancestor was William Hamilton, who came from Glasgow in 1668. Mr. Shepard's father, who was a physician, was well known throughout Schoharie County, and his grandfather, Hosea Hamilton, was a surgeon in the Revolutionary War and a personal friend of General Washington. At the age of 14 years he left school and took a position as a clerk in a hardware store at Dansville, N. Y. He subsequently removed to Rochester, where he remained until the spring of 1831, when he associated himself in business with a brother in Bath. This enterprise proving successful enabled him to remove to Buffalo in 1836 and purchase a hardware store and found the business which still bears his name. He subsequently established the sheet metal ware manufactory on Clinton and Union streets, and in 1849 became the owner of the Shepard Iron Works, on Ohio street, Buffalo.

Mr. Shepard resided in Buffalo and continued in the active management of his affairs until 1865, when he handed over the control of his Buffalo interests to his partners, and after spending several years in foreign travel returned to this country and purchased the old family homestead of his wife, at the village of New Haven, where he afterward resided.

All of the business enterprises of Mr. Shepard were successful in an eminent degree, and the concerns with which his name is associated attained a very high commercial standing. Mr. Shepard, however, was not content with these achievements and sought a wider field for the exercise of his busi-

ness ability. He was among the earliest to put faith in the possibilities of the electric telegraph and invested largely of his wealth in the stock of the Western Union Telegraph Company. He was a director of that company until within a few months of his death, when failing health compelled his resignation. He was also prominent in railroad affairs, and was a director in the Mobile & Ohio and Jersey Central roads, in which he held large interests.

Mr. Shepard had been a member of the First Presbyterian Church of Buffalo for over 50 years. He was married in 1851 and his widow and two sons, Charles Sidney and Ralph Hamilton, survive him. Mr. Shepard



SIDNEY SHEPARD.

gave away much during his life, though few, even of his most immediate associates, were acquainted with the extent of his benefactions, for they were bestowed in such a way that they were often known to none but the recipients, and at times even they were not made aware of the source of the gifts. He was not an indiscriminate giver, but exercised the same care and judgment in his charity which he applied in his business affairs. Regarding the personal character of Mr. Shepard, in business and in private life, we will quote the words of one who knew him: "Though Mr. Shepard withdrew some years since from active interest in the Hardware and Metal trades, yet the impress which he made upon all who were associated or acquainted with him during the many years that he was prominently identified with these lines, is a very

lasting one. He possessed an exceptional genius for organization and great executive ability. He was a close student of events and had the elements of progressiveness and conservatism happily united in his character. His adherence to the strictest principles of integrity was rigid and unswerving. His disposition was genial and inspiring and his memory will be treasured by all who enjoyed the privilege of knowing him."

Cycle Exhibit.

THE NATIONAL EXHIBIT of Cycles, Cycle Sundries and Accessories, being held during the present week—from January 8 to 13—

at the Madison Square Garden, New York, is proving a grand success. Manufacturers of wheels, sundries and accessories are well represented in the exhibit, somewhat over 100 having displays, and the attendance is encouraging. The arrangement of all the displays is attractive, while many have expended much labor and expense in erecting handsome pagodas. Ingenious combinations of forgings and Bicycle parts are used in the arrangement of companies' names, as signs, representations of machines, &c. Electricity plays an important part in enhancing the attractiveness of the exhibit at night, as the lights of the building and in each display shine upon the nicked machines and produce an almost dazzling effect. Among the features to which exhibitors call the attention of visitors are pneumatic tires, direct

tangent spokes, changeable gears, two speed Bicycles, wooden, aluminum and steel rims, improved valves, chains and detachable sprocket wheels, &c. Wooden rims are prominent on most makes of wheels, and new pneumatic tires are almost without number. Some makes of machines have the frame raised $1\frac{1}{2}$ inches higher from the ground than last year's models, while raised top bars and high deep frames for tall riders are seen in most makes of wheels. The outlook for trade is considered encouraging by manufacturers in general, and the lower list prices appear to have made no difference in the finish, material or appearance of the machines.

MORRIS B. BELKNAP, of W. B. Belknap & Co., Louisville Ky., is the recipient of much sympathy in view of the death of his wife December 29. Mrs. Belknap was the daughter of ex-Governor Buckner and a person of exceptional character and accomplishments.

The Next Hardware Dinner.

THE SIXTH DINNER of the Hardware and Metal Trades of New York will be held under the auspices of the Hardware Club at Sherry's, on Tuesday evening, February 27. Tickets, at \$5 each, can be obtained from A. D. Clinch of Underhill, Clinch & Co., 94 Chambers street. The opportunity of securing tickets is first offered to the members of the Hardware Club, and the committee in charge of the dinner are desirous of hearing as early as possible from those who are intending to purchase tickets. The number of tickets issued will necessarily be limited, so that it will be wise for those who desire to attend the banquet to send in applications at an early day. It is hoped that the gathering will be a representative one, as has heretofore been conspicuously the case, and that the trade outside of the city and throughout the country will be present in gratifying numbers.

Fine Arms.

ADMIRERS of fine Firearms who failed to see the exposition at Chicago, or, being there, missed the exhibit of Revolvers made by Smith & Wesson, can see the greater portion of it now in Hartley & Graham's window, 313 and 315 Broadway. Here may be seen nearly 70 pieces of the original 80 of varied kinds, styles and treatment in finishing. They range in price from \$20 to \$260 each and have an aggregate value of about \$5000. The engraving, etching, inlaying, carving, &c., were done by Tiffany & Co. of Union square. Some very unique designs are shown, several in blue black, inlaid with gold, which attract much attention. Others are gold plated, mounted in sterling silver, ebony handles, with silver, mother of pearl and ivory mountings, with eagle and dog head carvings. The metal parts are finished in a great variety of ways, which must be seen to be appreciated.

SCHOVERLING, DALY & GALES, 302 Broadway, New York, have on exhibition in their southerly show window several fine examples of Firearms. Among them we noticed three fowling pieces in particular, one being designated by them as Diamond Daly, this being the highest grade of that particular Shot Gun, and valued at \$250. Another was a Greener Ejector, at \$350, and the third a Scott Premier, priced at \$400. The fortunate possessor of these Firearms should only use them on game of the patrician order.

V. P. HUMASON, representing Humason & Beckley Mfg. Company, Wm. Rogers Mfg. Company and Stephens & Co., 80 Chambers street, New York, advises us that a public telephone pay station has been established at his place of business. The charge made to customers telephoning orders will be credited, so that they can make use of this station for that purpose without incurring any expense. The call number is 5050 H.

Imports from Australia.

S. HOFFNUNG & CO., whose headquarters are in London, with extensive warehouses in Sydney, New South Wales, and Brisbane, Queensland, are perfecting arrangements which will enable them to send to America Australasian staples. For this purpose Bernhard Sinauer of their Sydney house has recently arrived in this country. They have had in New York for years a branch house through which purchases for the Colonial market have been made. It has been a source of pride to them that buyers there could about satisfy their diversified wants from stocks in hand in their Sydney and Brisbane establishments. Their plan is to supplement their export business by a general merchandise import traffic. For the present they will confine themselves to several leading articles, others to be added as circumstances warrant. They will send Nickel from New Caledonia, Kerosene Shale from New South Wales, Skins, Hides, Horns, Kauri Gum, Pearls, Pearl Shell, Opals in the rough, Brandy, &c.

Kerosene shale is a valuable flux for improving the quality of illuminating gas. It is not new here, but has never been brought out in large quantities. Kauri gum is a material used here extensively in the manufacture of varnish, the importation of which has long been controlled by Arnold, Cheney & Co. of this city. This ingredient comes mainly from the upper part of Eabeinomaue, better known as North Island, one of the New Zealand group. It is a gum which came from great forests, long extinct, and now found in the earth from 1 to 5 feet deep. An invoice of opals in their natural state, aggregating \$5,000 in value, Mr. Sinauer disposed of within the week in one lot to a house here. Later, if the schedule in the new tariff bill will permit, wool will be brought here direct, instead of reaching us indirectly through the London market. It is claimed Australia produces the finest fleece grown, and nearly one-half the world's supply. If this commodity comes largely to this country it will be brought in fine large ships, as it is too valuable a cargo to be long en route, to say nothing of the difficulty in securing marine insurance on indifferent boats. It is evident that the more this country can absorb of their products, the more that people are likely to take of ours.

Lamson & Goodnow Mfg. Company.

LAMSON & GOODNOW MFG. COMPANY, Shelburne Falls, Mass., manufacturers of a large line of Table Cutlery, have removed from 33 Chambers street to 310 Broadway, near Duane street. They have secured one-half of the store, together with a corresponding portion of the basement and sub-basement, all of the floors being 125 feet deep. The street floor is now in process of renovation, and is being fitted up with counters, cupboards and showcases of antique oak. Along the wall will be upright showcases, with plate glass windows to lift, for displaying case goods and sets. Adjoining these will be a course of shelving for the higher grade goods. Below the shelving will be tiers of shallow drawers for showing samples of goods usually sold by dozen or gross. Near the center of the floor will be four 12-foot oak counters, with glass showcases on top for exhibiting fine goods. The paneled metal ceiling has been tinted a cream color, harmonizing well with the fresco work in shades of blue on the side walls. The offices will be

in the rear and the whole lighted by electricity. W. A. Willard, New York manager, who is supervising the work, hopes to be settled by February 1.

Whitman & Barnes Mfg. Company.

WHITMAN & BARNES MFG. COMPANY, who have a number of factories both in the United States and Canada, have removed from 102 to 111 Chambers street, New York, where they have secured a commodious store, 75 x 23 feet in dimensions, with basement and sub-basement of corresponding size. The premises are now being thoroughly renovated and remodeled. The partitions, trimmings, &c., are of antique polished oak. The offices will be isolated by means of paneled partitions fitted with French plate glass. The new quarters will allow of the carrying of a full stock of goods made by them, including Spring Cotters, Agricultural Wrenches, Twist Drills, Lawn Mowers, Agricultural Implements, parts, &c., for quick delivery. From this point will be done a general domestic and export trade, with especial attention to the latter. We noticed a number of cases containing goods of their manufacture about ready for shipment to Bombay, India, consisting of Lawn Mowers, Harrows and Twist Drills.

A Broader Margin Wanted.

A SUGGESTION comes from a prominent Ohio Hardware concern regarding the lack of space usually left on invoices upon which to make memoranda. They consider that it would be an improvement if jobbers and manufacturers and, in fact, all parties billing goods, would enlarge the borders of their stationery, so as to allow the buyer sufficient space to make memoranda which, in these days the correspondents consider necessary, including the following and similar designs:

Rec'd.....
By.....
Ch'g to.....
Price.....

Logan, Gregg & Co.

LOGAN, GREGG & CO., Pittsburgh, Pa., have prepared a handsomely illustrated souvenir for 1894, with which they extend a hearty New Year greeting to their friends. The front cover shows an exterior view of their new warehouse on Seventh street, while subsequent illustrations give views of their Wood street house, which they occupied 41 years; sample room and offices of their present establishment; floor plans; salesroom, equipment and supply department; billing and packing department; general offices; private offices, &c. In the various illustrations pictures are given of members of the firm and many of their staff, including a group of 11 traveling salesmen. The building occupied by the company at present is six stories high and basement, erected especially to suit their business. They have their own power for elevators, electric light plant and steam heat throughout the building. The pamphlet is elegant and artistic, and admirably adapted to its purpose.

Bicycles for 1894.

FOURTH ARTICLE.

Prices.—As the various manufacturers are deciding upon their line of wheels for the coming season prices are being announced.

Gormully & Jeffery Mfg. Company, Chicago, will list their wheels in standard finish, with either steel or wood rims, at \$125; or full nickeled, \$145; or if desired with hard rubber rims \$10 each extra will be charged.

The Monarch Cycle Company, Chicago, will list their 26-pound wheel, with wood rims and Palmer tires, at \$125; their light roadster, 31 pounds at \$100; the ladies' Monarch at \$100, and their Model C at \$90.

George N. Pierce & Co., Buffalo, N. Y., list their men's wheel at \$100, or fitted with wood rims and racing tires at \$105, or with G. & J. detachable tires at \$110. Their ladies' wheel lists at \$100, or with wood rims and light tire at \$105.

The Keating Wheel Company, Holyoke, Mass., will list their wheels at \$125 with additional charge for special light rims and specially built wheels.

The Demorest Mfg. Company, Williamsport, Pa., list their machines at \$125, including a ladies' wheel. A lower grade is listed at \$100, while lighter machines list at \$150.

The National Cycle Company, Fitchburg, Mass., make but one model of chainless rear driving Bicycle, which will be listed at \$150.

The Hartford Cycle Company, Hartford, Conn., will list their machines at from \$85 to \$100, with lower priced wheels for boys and girls.

The Ariel Cycle Mfg. Co., Goshen, Ind., are listing their wheels at \$150.

Frames.—A large number of manufacturers are making a high or deep framed wheel for extra tall riders. This is done in many cases by lengthening the frame from the crank shaft to the seat rod bracket, though in some instances wheels of additional height are also used.

Rims.—While manufacturers are fitting wooden rims to some wheels, and will fit them to any of their line to order, they are doing so usually at the risk of the owner. There seems to be no doubt as to the strength of the wood rim, but experience has not yet demonstrated its staying qualities through an entire season, submitted to various climatic changes and under different riders.

GORMULLY & JEFFERY MFG. COMPANY, Chicago, will place Ramblers on the market for the season, as follows: Nos. 7, 8, 9 and 6, ladies' Model B and ladies Model C. Their No. 7 is their best all around road wheel, and will weigh about 30 pounds. This differs from the No. 4 of 1893 in many respects. The frame is higher, the head $1\frac{1}{4}$ inches longer, and the top rail is of $\frac{3}{8}$ -inch instead of $\frac{1}{4}$ -inch tubing. The two rear fork braces are of $\frac{3}{8}$ -inch tapered tubing instead of $\frac{1}{4}$ -inch, and the lower rear frame is also braced with a bridge in front of the wheel for additional strength. The front fork is made with a new head to support the strain that formerly came on the fork

stem and thus relieve it from danger of breaking. The cranks will be $6\frac{1}{2}$ inches, with lighter arm and of smaller and lighter make up generally. The front sprocket will be made in two sizes, with 17 teeth and 18 teeth, respectively, the former with an eight-tooth rear sprocket, making practically 60-inch gear, the latter to be used when the gear is wanted higher. The pedals will be of new and improved form, and the wheels will be fitted with the improved G. & J. tire and rim. The No. 8 is a light touring and scorching wheel for the road, lighter in every way and slightly different in construction from the No. 7, fitted with a light foot brake, and weighs about 25 pounds all on. No. 9 is a racing wheel, weighing 19 pounds or less. No. 6 is intended for tall and heavy riders, having 30-inch wheels, and weighs 38 pounds. Model B, ladies' Rambler, will be the same as heretofore. Model C, ladies' Rambler, is similar to model B, but has 26-inch wheels and is of somewhat lighter construction. The machine is specially adapted for light lady riders, and weighs about 30 pounds. In the standard finish of the machines steel rims will be used, with copper plated finish or black enamel, as desired. Wood rims will be furnished when desired at the same list price. The company remark that they are not fully prepared to judge of the value of wood rims, although they have succeeded in producing what they consider a successful detachable pneumatic tire with a wood rim. The hollow rubber rim is referred to as entirely new, and as very neat and light. Its use is advised in localities where it would be subject to moisture and saline atmosphere, such as at the sea coast, where a metallic or wooden rim would be affected by these conditions. The list price for Ramblers in standard finish, with either steel or wood rims, will be \$125; full nickeled, \$145; or if hard rubber rims are desired, \$10 each extra.

GEORGE N. PIERCE & Co., Buffalo, and 23 Warren street, New York, advise us that they are making a high grade line of wheels at moderate prices. The line includes the new 1894 Queen City safety, No. 28, weight 33 pounds, list \$100, or with wood rims and racing tires, 28 pounds, \$105, or with G. & J. detachable tires, \$110; Queen City ladies', No. 28 P, 36 pounds, list \$100, or with wood rims and light tires, 32 pounds, \$105. Either of these Bicycles with $1\frac{1}{2}$ cushion tires lists at \$100. In addition to these, lower priced machines list as follows: No. 26 D P, \$65; No. 26 D, \$60; No. 24 D P, \$55; No. 24 D, \$50; No. 26 P, \$65; No. 26 C, \$60; No. 24 P, \$55; No. 24, \$25; No. 24 C, \$40; No. 20, \$20; No. 20 C, \$23; No. 30 P, \$90; No. 30, \$75, and No. 30 $\frac{1}{2}$, \$80. Special attention is paid by the company to youths' wheels, to which line the No. 24 D P is an addition, having 24-inch wheels and diamond frame, with full ball bearings. The other youths' machines have been improved for this year.

THE MONARCH CYCLE COMPANY, Chicago, have concluded to make several changes in their line for '94, and will construct an entirely new machine with high frame, 28-inch front and rear wheels, wood rims, Palmer tires, weighing about 26 pounds and listing at \$125. Their Monarch light roadster for '94 will weigh 31 pounds, having 30-inch front and rear wheels, high diamond frame, and lists at \$100. The ladies' Monarch, will have a double loop frame, 28-inch front and rear wheels, weight 35 pounds, listing at \$100. Their Model C will be built with a diamond frame, two 28-inch wheels, weight 35 pounds, listing at \$90. The manufacturers state that their list in some instances is $33\frac{1}{2}$ per

cent. less than a year ago, while their line is generally improved.

Dinners in the Hardware Trade.

WE have recently called attention to dinners given by the members of Hardware houses to their staff, thus bringing together in a very pleasant way those who are associated in the conduct of business; and it is pleasant to note that there is an increasing tendency in this direction. Employers recognize the desirability of cultivating kindly relations with their clerks and assistants, and there can be little doubt that much benefit in many ways results from such gatherings. We take pleasure in mentioning below other dinners or banquets which have recently been held.

Supplee Hardware Company.

William W. Supplee, president of the Supplee Hardware Company, Philadelphia, Pa., tendered a banquet to the salesmen of the company on the 5th inst. It had been intended to give the banquet at an earlier date, but the death of William J. Lloyd, Mr. Supplee's former partner, necessitated its postponement until the above date. The banquet is thus referred to by a gentleman who was among those present:

Another New Year has dawned, and with it another of those delightful occasions, the annual dinner given to the salesmen of the Supplee Hardware Company on the evening of January 5, at Boldt's, Bullitt Building, by the president, William W. Supplee, luncheon having been given to the balance of the employees prior to January 1, but the annual banquet to the salesmen having been postponed out of respect to Mr. Supplee's former partner, William J. Lloyd, whose death has already been noted in the columns of *The Iron Age*.

One's impression of the dinner of last year is somewhat dimmed by that of the one just past, not from any lack in the menu or any difference in the social element gathered together, but for some reason there seemed less restraint, if that were possible, and all present seemed to be brimful of the spirit of good will and cheer.

Thirty-five guests enjoyed the bounteous repast (presided over by the genial host, Mr. Supplee), which was served in Boldt's usual good style, and from oysters to coffee, full justice was done, and nothing was overlooked. Among the guests we noticed five new faces, who have cast their lot with those older ones in the employ of the company, and we bespeak for them the same kind and generous treatment that has already been accorded to each and every one.

Mr. Supplee, as is usual with him, was perfectly at home as the presiding host, and each one around the table contributed his share to make the evening one never to be forgotten. Speech, song and wit marked the hours as they flew by, and from beginning to end it was a veritable "feast of reason and flow of soul."

At the conclusion of Mr. Supplee's address of welcome he was very cleverly surprised by being presented with a Dresden mantel clock and vases as a token of the esteem and respect in which he is held by those around him.

The dinner concluded with the singing of "Auld Lang Syne" by all present, and with wishes for a happy new year.

ONE OF THE GUESTS.

Buehler, Bonbright & Co.

On Tuesday evening, the 2d inst., the firm of Buehler, Bonbright & Co. tendered their employees their second annual supper in the banquet hall of Partridge's restaurant. Covers were laid for 50, but on account of sickness and other causes only 38 persons were able to respond. After the gastronomical portion of the exercises was concluded a pleasant hour was spent in addresses by members of the firm and heads of departments, which were listened to attentively and made a very favorable impression. During the evening the following resolutions were adopted:

Resolved, That we notice the absence of our friend, Edward D. Eyre, and regret that he is not with us this evening; that in his retirement from business associations with us he carries with him our best wishes for his success and prosperity; that we wish to testify to our appreciation of his great business abilities and to the uniform courtesies and kindness in his relations with us; that we wish him a happy and prosperous New Year, and that we request the chairman to send a copy of these resolutions to him.

The resolutions were then adopted by a unanimous standing vote. The company broke up at 11 o'clock after singing "Auld Lang Syne."

King Hardware Company.

The King Hardware Company, Atlanta, Ga., tendered a banquet to their employees on the evening of December 26. The dinner was given at the Kimball and is referred to as exceedingly creditable to the proprietors of that hostelry. The banquet room was decorated with winter flowers and plants and presented a beautiful appearance. After the dinner addresses were made by George E. King, the head of the house, W. E. Newell and F. S. Dean. The evening was an exceptionally pleasant one and the affair a decided success. It undoubtedly promoted to a gratifying degree the good feeling between employers and employees, which was indeed the primary object of the gathering.

Trade Items.

BUEHLER, BONBRIGHT & CO., Philadelphia, have been appointed agents for the Crescent Horse and Mule Shoes, and will carry a full stock of all patterns and sizes in their warehouse. This Shoe is made from a soft and tough Virginia iron and is referred to as equal to any Shoe in the market, while it can be sold at the lowest price.

R. W. CAMERON & Co., 23 South William street, New York, announce under date January 2 that, in consideration of his long and faithful services and as extra compensation therefor, they have granted to Charles Kydd an interest in the profits of their business, commencing July 1, 1893. Roderick McLeod Cameron, son of Sir Roderick W. Cameron, the senior member of the firm, has also been admitted as a partner.

WILLIAM KEMPF, 2814 Market street, St. Louis, Mo., devotes much attention to the display of goods in the show windows of his establishment. An artistic arrangement of fine tools upon the wall surface of one of the windows

is a late and successful attempt in this direction. A semicircle of Auger Bits is above his name, under which in curves are placed Chisels, Hammers, Drawing Knives and other tools. The floor of the window is taken up with a display of Planes, Oilers, Plumbs and Levels, &c.

J. C. McCARTY & Co., 97 Chambers street, New York, as agents for the Peters Cartridge Company, Cincinnati, Ohio, are carrying in stock for the convenience of the trade a full line of the company's Shells, popular loads, and also of their Drop Shot, all regular sizes.

ALFRED FIELD & Co., 93 Chambers street, New York, announce that they have engaged the services of L. R. May, who was for many years connected with McCoy & Sanders, and lately with J. F. McCoy Company. Mr. May will represent them over his old territory, and they respectfully solicit a continuance of the orders with which he has heretofore been favored.

THE ANNUAL BANQUET of the Hardware Merchants and Manufacturers' Association of Philadelphia will be held at the Union League Club on the evening of January 17 at 7.30 o'clock.

OHIO LANTERN COMPANY, Tiffin, Ohio, are getting out a new side lift Lantern, which they predict will prove a successful competitor with any similar goods now offered. A full line of their goods is carried in stock at their New York address, 81 Chambers street, W. W. Pryor & Co., agents.

J. H. ROBLEY, 142 Chambers street, New York, will hereafter, as agent, represent the Yost Mfg. Company, Toledo, Ohio, manufacturers of the Falcon Bicycles, in the territory covered by Rhode Island, Connecticut, New Jersey, Long Island and a portion of New York.

DURING the first week of the new year there was shipped from New York, variously consigned to Liverpool, London and Antwerp, 45 tons of American Machinery and Hardware for account of Chas. Churchill & Co., 21 Cross street, London, E. C. This is a well-known American house established nearly 30 years ago in London for the purpose of introducing into Great Britain and on the Continent high grade Tools produced here. This house also have a branch in Birmingham, England.

GRAHAM, PASSMORE & Co. of Philadelphia, manufacturers of the well-known Philadelphia Lawn Mowers and Sweepers, have, after an existence of upward of 37 years, gone out of business. The business and factory have been acquired by a corporation composed of John W. and Walter Graham, Benjamin Ketcham, Jr., Daniel A. Waters and Wm. G. Vernon, who will carry on the business under the name or style of the Philadelphia Lawn Mower Company, at 3107 and 3109 Chestnut street, Philadelphia, where the factory is situated and where they have recently erected a two-story brick annex 78 x 28 feet, which they will use for office purposes. The new company will also take over the agency for the Hurd Refrigerators and Traveling Lawn Sprinklers. The members of the company are all business men and have been connected with the Lawn Mower trade for a number of years.

LUDLOW MFG. COMPANY and Ludlow Cordage Company, Boston, issue a joint circular in which they announce that their office building and salesroom, 138 Essex street, destroyed in the conflagration on March 10 last, has been rebuilt, and was occupied by them on January 1.

Calendars.

F. E. MYERS & BRO., Ashland, Ohio, have prepared for their trade a combined poster and calendar of considerable length, which is sent with the compliments of the concern. Illustrations show their plant, also Pumps with brass or brass lined cylinders, glass valve seats, expansion buckets, steel bolts, &c.; Double Lock Hay Carriers, Double and Single Steel Tracks, Steel Forks, Slings, Spray Pumps, Nozzles, &c.

RHODE ISLAND TOOL COMPANY, Providence, R. I., greet their friends for 1894 with a handsome colored picture. It shows the "Vigilant" under full sail, the picture measuring 11 x 14 inches, mounted on a dark colored mat. The picture is an attractive one and a pleasant reminder of the company sending it.

WATERBURY BRASS COMPANY, Waterbury, Conn., and 296 Broadway, N. Y., issue a calendar representing a hunting scene, under which attention is directed to their line of manufactured goods. These include Brass, Gilding Metal, Copper and German Silver, Brass Kettles, Brass and Copper Rivets and Burrs, Hicks' Patent Primers, Percussion Caps, Flasks, Pouches, Belts, Game Bags, Gun Wads, Powder and Shot Measures, Measuring Tapes, Metallic Eyelets, Brass Ferrules, and small brass wares of various descriptions.

W. C. BROWN, 45 La Salle street, Chicago, representing the Cleveland Twist Drill Company, favors us with one of the company's calendars for 1894. The design of this calendar is unique. Attached to a stiff pasteboard back, handsomely printed in colors, is one of the Matthews-Northrup Company's "daily reminders," arranged for daily memoranda for the entire year. The little book is fastened in the middle and the pages are held open by brass clips on the sides. Mr. Brown also represents the Reeves Iron Company, Wells Bros. & Co., Old Dominion Iron & Nail Works Company and Terre Haute Shovel & Tool Company.

THE UNION METALLIC CARTRIDGE COMPANY, Bridgeport, Conn., New York and San Francisco, present a handsomely colored 1894 calendar with date leaves attached. The picture is of a group of pups, with gun and game bag in the background, and will appeal to sportsmen. In the foreground is a box of U. M. C. Water Proof Smokeless Paper Shot Shells, which the young dogs have torn open, scattering the Shells about.

KILMER MFG. COMPANY, Newburgh and 111 Water street, New York, are sending out a pocket memorandum book containing useful information in which their manufactured goods are noticed, including Arrow and adjustable Bale Ties, Wire Rods, Barb Wire, coiled steel Wire, ornamental Fencing, Wire Staples, Galvanized Wire, &c. The information given relates to the above goods, also to farm products and other subjects, and will thus be useful to those into whose hands the books will find their way.

THE NUBIAN IRON ENAMEL COMPANY, Cragin, Ill., send a calendar for the first three months of 1894, in pad form to stand, each leaf of which has the date, a blank space for memoranda and remarks regarding their Enamel. The Enamel is made in all grades from the cheapest to the best.

WM. STAIRS, SON & MORROW, Halifax, N. S., send a calendar upon which attention is directed to their stock of Heavy and Shelf Hardware, boiler makers', machinists', plumbers' and sanitary supplies, mining materials,

ship outfits and fishing materials. An illustration is given of their building which was destroyed with the entire stock in August, 1893, and the statement made that for 1894 the stock is entirely new and every department complete.

PUTMAN NAIL COMPANY, Neponset, Mass., send a handsomely engraved calendar calling attention to their hot forged and hammer pointed Horse Nails. A view is given of their extensive plant; also of a smith at work, to emphasize the fact that they follow the same old process, using hammers exclusively. The capacity of the works is stated as being 10 tons per day.

WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn., New York and San Francisco, send an artistic calendar for 1894, with pictures at top and bottom and date leaves between. The upper picture is by Frederic Remington, representing ranchmen protecting stock from wolves. The other picture represents two hunters in a canoe surprising a moose on the land. Attention is directed to the company's Repeating Rifles, Shot Guns, Single Shot Rifles and Ammunition.

Price-Lists, Circulars, &c.

BATEMAN MFG. COMPANY, Grenloch, N. J.: Iron Age Farm and Garden Implements. An illustrated price-list shows Cultivators, Horse Hoes, Gang Plows, Fertilizer Drills, Harrows, Wheel Hoes, Wheel Plows, Barrel Truck and Hand Cart, Trowels, Bateman Hoe, &c. It is stated that all parts of the goods are interchangeable and when knocked down pack very close, which is an advantage in exporting.

THE DILLE & MCGUIRE MFG. COMPANY, Richmond, Ind.: Souvenir catalogue. The catalogue is a handsome one, giving large, full page views of scenes at the World's Fair grounds, including the lawns upon which McGuire's Diamond Lawn Mowers are in operation. In connection with these views are testimonials from officials in charge of this part of the grounds as to the satisfactory working of the Mowers furnished. McGuire's Diamond Mowers, we are advised, were the only ones used officially on the grounds at Jackson Park. In addition to the foregoing illustrations, the company's plant is shown, also various reproductions of photographs showing the Diamond High Grass 20-inch cut machines cutting in tough wire grass. Cuts are given of the Diamond High Grass Mower and of McGuire's Edging Shears. The company remark that it is nearly a quarter of a century since they issued their first circular, and as their twenty-fourth anniversary is just dawning, they take pleasure in presenting their friends and patrons with substantial proofs of that which has been accomplished by untiring effort and years of practical experience.

THE KNOWLES SCALE WORKS, Wm. H. Thompson, proprietor, Lowell, Mass.: Standard Scales. A circular illustrates Lowell Standard Platform Scales, New England Union Double and Single Beam Scales, Even Balances and Lowell Counter Scales. The works have no men on the road, but give their customers the benefit of the commission which represents the expenses of selling goods through traveling salesmen.

CRONK HANGER COMPANY, Elmira, N. Y.: Hangers, Pliers, &c. A catalogue for 1894 illustrates, with descriptions and prices, Cronk's steel covered loose axle anti friction Barn Door Hangers, anti-friction steel Barn

Door Hanger. Carrier's double braced steel Rail, Cronk's adjustable Stay Roller. Cronk's inside adjustable Stay. Cronk's wrought steel Garden Rake. Cronk's Garden Mattocks, Cronk's Stubbs' patent Pliers, Button Pattern Pliers, Cronk's Wire Cutter and Bender, Cronk's Pruning Shear and expansive Rubber Valve for chain pumps.

BOSTON WOVEN HOSE & RUBBER COMPANY, Boston: Cotton and Rubber Garden Hose, Rubber Belting and Packing; also, N. G. L. Bicycle Tire. An 1894 catalogue devoted to Garden Hose illustrates, with descriptions, black line spiral woven Cotton Garden or Hydrant Hose, jacket Cotton Hose, various brands of Rubber Garden Hose, Couplings, Hose Pipes, Sprinklers, Sprays, common Hose Holder, Shut Off Connection, Hose Menders, Hose Straps, Reels, &c. A separate catalogue relates to their N. G. L.—Never Get Left—Bicycle Tire, of which illustrations are given, and also shows it in section on a wooden rim.

CHARLES H. BESLY & Co., Chicago: Gardner Die Stock and Parallel Clamps. A circular describes the Gardner Die Stock as put up in cases in sets, including Taps, Dies and hardened Bushings. These goods are designed to combine the greatest strength with the least weight. The Parallel Clamps are shown in another circular, made all of steel and case hardened. They may also be used as an attachment for drill, planer, milling machine or shaper. All surfaces of the Clamps are either parallel or at right angles to each other, and it is stated that articles held in the Clamps may have holes drilled parallel to each other or at right angles to each other without being removed from the Clamps.

THE CHRISTY KNIFE COMPANY, Fremont, Ohio: Christy Knives. A circular illustrates Bread, Cake, Parer, Carver and Table Knives; also Lemon Slicer and Household Saw. The Knives are furnished in sets or separately.

NEW ENGLAND PAINT COMPANY, Boston: Paints and Dry Colors. Tinted Leads, pure Japan Colors for fine coach and car painting; White Lead and Zinc Paints, ready mixed New England pure Liquid Paints, Queen Anne Liquid Paints, Floor Paints and fine ground Colors in oil. The manufacturers state that they have this year added to their list of manufactures an increased number of tints of both Liquid and Paste Paints, and have added several specialties: also combined Shingle Stain and Paint, which they manufacture to order in almost any shade.

THE MEYERS PUTZ POMADE COMPANY, Boston, New York and Chicago: Putz Pomade, Paste and Extract. The company, as sole importers of these goods, show in an illustrated price-list the packages in which the various preparations come, and a stand for the display of the liquid Pomade.

L. S. STARRETT, Athol, Mass.: Fine Mechanical Tools. In an 1894 catalogue a large line of these goods are illustrated, with prices. Slight changes have been made in the prices of some numbers of Squares, also of some separate parts. A number of pages at the back of the book are devoted to tables of value to mechanics. Attention is directed to the following Tools as being new: Thin Steel Squares, Screw Pitch Gauges, Cutnipper, Metric Rules, Firm Joint Calipers, Surface Gauges, Stair Gauge, Speed Indicator, Milling Cutters and additional lengths of Rules and Straight Edges.

BUCKEYE MFG. COMPANY, Union City, Ind.: Hardware Specialties and

Carriage Makers' Supplies. An illustrated price-list shows the Boss Two Speed Boring Machine, Lightning Drain and Vault Cleaner, Improved Gem Post Hole Auger, Flooring and Door Clamps, Finished Buggy and Spring Wagon Neck Yokes, Adjustable Neck Yoke Centers, Carriage Poles, Wagon Jacks, Spiral Spring Buggy Wrench, Buggy Shafts, Neck Yoke Lock, &c.

THE W. BINGHAM COMPANY, Cleveland, Ohio, in their January circular, "From the Corner Desk," call attention in particular to their X-L-C-R. brand of steel goods. These goods are made by the Geneva Tool Company and are the same as are sold under the Geneva brand. The circular, as usual, is interesting and forcibly written and contains suggestions of value.

It Is Reported—

That O. L. Sturtivant has disposed of his Hardware business at Ogden, Iowa, and has with his family located in Phoenix, Ariz. Mr. Sturtivant engaged in the Hardware business in Ogden as early as 1867.

That the Hardware store of G. A. Henderson, Sterling, Colo., was broken into on December 29 and about \$50 worth of Knives and Revolvers stolen.

That the Hardware establishment of Shellhouse & Co., Indianapolis, Ind., was entered by burglars on January 2. The thieves entered by a back window and cleared out the showcase containing Knives, Razors and Tools. The loss is estimated at \$100.

That the Hardware store of Kibbar & Kempton, Curtis, Neb., was burglarized on the 25th ult. A few Revolvers and Knives were taken.

That Christopher Stevens has purchased of T. R. Whittaker, Delta, Neb., his large store building and entire stock of Hardware, Farm Implements, &c. Mr. Whittaker will hereafter devote his attention to the sale of lumber, coal, lime and grain.

That Henry W. Weber is making extensive repairs in the interior of his Hardware store at West Bay City, Mich.

That W. R. Wilson's Hardware store, at Mount Morris, Mich., was robbed of Knives, Razors and other goods on the night of the 27th ult.

That on January 1 the Hardware firm of J. B. Crosby & Sons, Ashtabula, Ohio, was succeeded by the Crosby Hardware Company. The original firm of Bixby & Crosby began business in 1868. In March of 1870 the firm of Crosby & Wetherwax was formed. This firm continued for ten years, when the firm of J. B. Crosby & Sons was organized, continuing for 14 years. J. B. Crosby, Sr., has been continuously at the head of the house for over a quarter of a century, but has been in rather poor health for the past few years, and the business has been looked after by his four sons.

That the Stove and Tinware business of Dade & Melton, Henderson, Ky., has been purchased by H. F. Dade, Jr.

That R. A. & T. C. Kearney have opened a new Hardware store at Brockwayville, Pa.

That L. E. Baker recently disposed of his interest in the Hardware firm of Baker & Low, Braddock, Pa.

That by mutual consent of its members the Hardware firm of Wicks, Hughes & Griffith, Utica, N. Y., dissolved on January 1. Mr. Griffith has retired and a new firm has been formed by Joseph Wicks of Utica, George H. Hughes of Spokane, Wash.,

members of the former firm, and Willard C. Hughes of Utica. The style of the new firm will be Wicks, Hughes & Co. The firm of Wicks, Hughes & Griffith was formed about 20 years ago.

That Henderson's Hardware store at Woodburn, Ore., was burned out on the 24th ult.

That the Roberts Stove & Hardware Company, C. A. Roberts, president, Denver, Col., have purchased of F. N. Bancroft the stock of the late Roberts Hardware Company, and will continue the business. Mr. Roberts founded the Roberts Hardware Company in 1869.

That the Hardware firm of Alberty & Soper, Perry, N. Y., have sold out to Albert Tallman.

That the Hardware store proprietors of Middletown, N. Y., have agreed to close their stores evenings at 6 o'clock from January 1 to March 12, 1894.

That the Hardware store of Harrison & Warren, Weston, W. Va., was entered by burglars on the 27th ult., and \$40 worth of goods carried away.

That Brant & Erickson will build a new Hardware store at Cambridge, Minn.

That Goodnow & Winter have succeeded Goodnow, Winter & Nelson in the Hardware and implement business at Clarkfield, Minn.

That A. H. Sheldon & Co., Crummeys & Brooks, Lowell Hardware Company, Holloway & Johnson and G. A. Lamphier, Hardware merchants of Janesville, Wis., have decided to close their stores evenings, with the exception of Saturdays, at 6 o'clock, until April 1, 1894.

That the establishment of Standart Bros., wholesale Hardware dealers, Detroit, Mich., was badly damaged by fire on the 3d inst.

That the Hardware firm of Kridler & Kneasal of Petersburg, Ohio, has been dissolved. Mr. Kneasal has purchased the interest of his partner and will continue the business.

That Edward Coombs contemplates opening a new heavy Hardware establishment in Fort Wayne, Ind.

That Thomas Nance has purchased Mr. Koehler's interest in the Hardware firm of Koehler & Van Zandt, Madrid, Iowa.

That Fred Shiras will soon open a Hardware store at Great Falls, Mont.

That Andrew Johnson & Co.'s Hardware store at Galesburg, Ill., was destroyed by fire on the 30th ult. Loss, \$6,000; insurance, \$5,000.

That the Hardware store of M. Nodine, Ocosta, Wash., was burglarized on the 26th ult. One hundred dollars' worth of Cutlery and fine Hardware was stolen.

That the J. H. Tschudy Hardware Company, Kansas City, Mo., have increased their capital from \$15,000 to \$30,000.

That the Carleton Hardware Company, Calumet, Mich., have been incorporated. The capital is placed at \$15,000.

John W. Surpluss, second son of James Surpluss of Surpluss, Dunn & Alder, 97 Chambers street, New York, died January 5, 1894, after a short illness of typhoid fever. For the past two years he has represented Surpluss, Dunn & Alder on the road, where he had made many friends among the trade and gave promise of a brilliant future. The tidings of his death were received with very sincere sorrow by those who knew him, and his father is the recipient of many expressions of sympathy.

Paints and Colors.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

White Lead.—The revised price-list issued last week has failed to stimulate business. One reason, perhaps, is the fact that the large distributors have gained no advantage, since the drop in the price of the pigment is no greater than the decline in cost of base material, leaving outside corrodors and manufacturers of quick process and mixed Leads no worse off at the present time than they were a year ago. Then, the smaller buyers find that "outside" Leads are still relatively the cheapest. Purchases are made accordingly. Besides, the dullness in the painting business, as well as in nearly every other line, operates against buying except as necessary assortments may need replenishing.

Red Lead and Litharge.—Business in American has increased slightly since the new list prices went into effect, but the improvement is chiefly due to the placing of orders that had been held back until the actual rates were officially announced.

Orange Mineral.—Sales of foreign stock for near future shipment have increased somewhat, but the movement does not turn out larger than usual at this season of the year and buyers fill their wants readily at prices as low as any that have ruled during the past month or six weeks. Domestic brands are unchanged in price and sell very slowly.

Zincs.—Orders for American Oxide have improved somewhat in number, but only moderate quantities are being taken. Slowness of general trade affects both small and large buyers, while the latter seem to be influenced in some degree by the comparatively low cost of production.

Colors.—The manufacturers of American Quicksilver Vermilion have reduced their prices to the basis 43¢ for bulk and 44¢ for bags. It was understood that a reduction in Carmine was also to have been made, but thus far none is announced. For other lines of Colors the quotations are practically the same as have been named for some time past, but those figures are quite frequently shaded. Business continues slow and the demand shows little or no improvement.

Oils and Turpentine.

Linseed Oil.—City pressers name the same prices that have ruled for several weeks. The quotation for out of town brands is also unchanged. Business has been slow, however, and the market has a dull appearance in the face of stiff holding in all quarters.

Cotton Seed Oils.—On actual sale there is an advance of about 2¢ on Crude and 1¢ @ 1½¢ on Summer Yellow. The improvement has taken the place of rather moderate business here and would seem to be chiefly due to lighter offering for near future delivery. Stocks at the South are believed to be quite heavy.

Lard Oil.—Prices have remained remarkably steady, varying to no greater extent than about 1¢ during the entire week. Business has been fair. Demand is about up to the January average. Later movement in price is dependent upon the course of the market for raw material.

Fish Oils.—Nothing but merely routine business has been effected. There is no change in the character of the demand or in the offering of either Crude or Refined stock. Such as it is,

the business passing is at practically former prices.

Miscellaneous.—In common Olive Oil there has been rather more business, but not enough to affect prices. Coconut Oils have just about held their own in price, but sold slowly. Red Oils are rather weak in price and meet with moderate sale.

Spirits Turpentine.—No business of other than routine character has been effected here, but Southern advices have served to promote a stronger feeling, under which prices were raised to 30¢ for regular and 31¢ for machine barrels.

Relay Special Features for 1894.

Relay Mfg. Company, 753-755 Cherry street, Reading, Pa., are introducing the special features shown in the accompanying cuts in their 1894 machines. Fig. 1 shows the crank axle

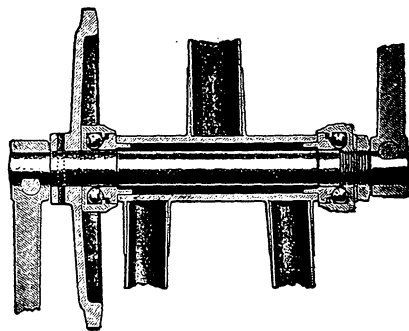


Fig. 1.—Crank Axle Bracket.

bracket, which has been made wide in the bearings without increasing the tread. It is oil containing and practically dust proof, as the oiling is done

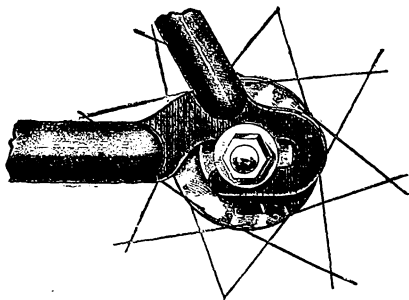


Fig. 2.—Rear Adjusting Fork.

through the center of the crank shaft. The rear adjusting fork, Fig. 2, allows the rear wheel to be taken out without taking the chain apart, and also does

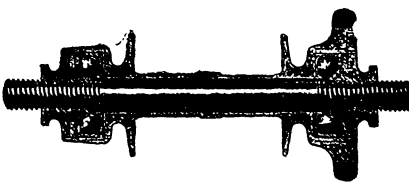


Fig. 3.—Hub.

away with the adjusting screws used heretofore. The hub, Fig. 3, is also dust proof and oil containing, the same as the bottom bracket.

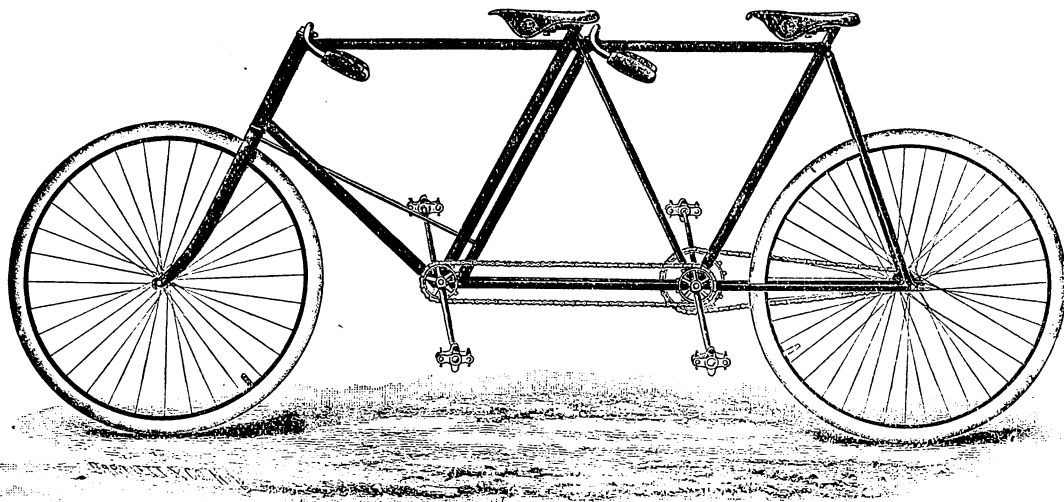
The Stearns Tandem.

E. C. Stearns & Co., Syracuse, N. Y., are putting on the market a tandem as herewith shown. It is described as being made with a single tube frame of the finest quality seamless steel tubing, strongly reinforced at connections with 10½-inch head, 28-inch wheels, fitted

dem the peculiar strains to which it will be subjected have been carefully considered, and that although of very light weight they are confident it will maintain the reputation established by their other light weight machines. The tandem will also be furnished with dropped frame in front for ladies' use on the forward seat, on lines similar to

Improved Freezers.

The North Bros. Mfg. Company of Philadelphia, Pa., have made what is claimed to be an important improvement in their line of Ice Cream Freezers. The improvement is to be found in the



The Stearns Tandem.

with Stearns' wooden rims. The spokes are cold swaged steel, tangent, tied, 40 to the rear and 32 to the front wheel. It is provided with Providence double tube pneumatic tires, Stearns' Humber pattern hardened steel chain, Stearns' detachable round cranks with key fastening, 6½-inch throw, and Stearns' ball bearing rat trap pedals, with detachable foot plates. It has Stearns' improved adjustable dust proof ball bearings throughout, Stearns' tubular seat posts and special semi-racing saddles. The handle bars are downward curved, with cork handles; round knurled step; mud

their Ladies' Model C. This style we are advised will weigh about 7 pounds more than the diamond frame.

Harper's Door Stop.

The accompanying cuts represent a door stop introduced by the Harper Mfg. Company, Peoria, Ill. The stop as shown in Fig. 1 measures 4 inches in length and is made more ornamental than shown in the engravings. The stop can be put on either side of the door and is operated by the foot. There is an inclined surface on the upper end

hoops of the pails of the Shepard Lightning Freezer, which they are now making, having acquired the freezer business of the Shepard Hardware Co. The hoops are made of galvanized wire, welded by electricity, and are embedded by a patented process in grooves made in the pail, thereby securely clamping the staves and making it impossible, it is claimed, for the hoops to fall off or be forcibly removed without injury to hoops or pail. Wire hoops, it is claimed, possess many advantages over the ordinary riveted flat hoops; expansion of the wood cannot break them,

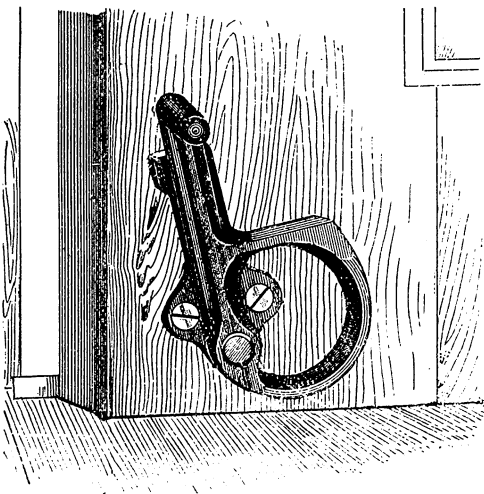


Fig. 1.—Harper's Door Stop.

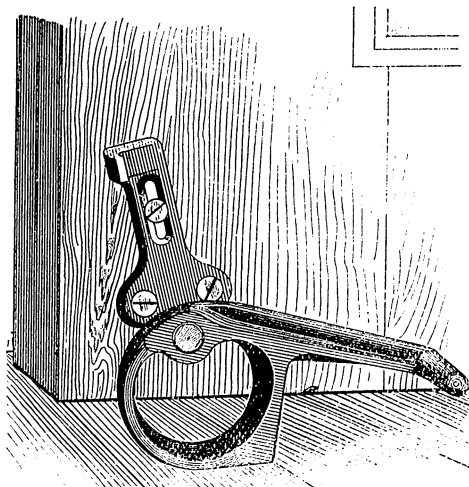


Fig. 2.—Door Held with Stop.

guards; tool bag, with air pump, oiler and Stearns' solid wrench. It is geared to 68 inches, with a wheel base of 64 inches, and the scale weight is given as 38 pounds. The machines are finished black with gold striping and orange rims. Options are as follows: 60, 64 or 72-inch gear; rubber pedals; other types of cemented or detachable tires, and ladies' saddle for forward seat. The manufacturers remark that in the tan-

dem the stationary part of the stop which causes the movable part to be held in position when thrown up, as in Fig. 1. The door may be held at any angle when the stop is turned down, as in Fig. 2, and it is stated the strongest wind will not close it. The point is made that doors only sag when open and that the stop will prevent their sagging. The goods are finished in japan and also in antique copper.

and they will not stretch; being round, only a small portion of surface is presented to the pail; therefore, when the pail swells the hoops tend to compress the wood and cause the pail to retain its original size. The claim is also made that the electrical process of welding used in the manufacture of the hoops conduces to a better and stronger joint than is possible by any other method.

The Jewel Lawn Sprinkler.

The accompanying cuts show a lawn sprinkler offered by the Detroit Sheet Metal & Brass Works, 64-72 Orleans street, Detroit, Mich. The distributing channels of the sprinkler, shown in Fig. 1, are referred to as large, having no possible chance to clog up. It is stated that it will sprinkle a diameter of from 2 to 40 feet, according to the water pressure; also in a half circle as in Fig. 2. A full circle is obtained by turning the small thumb screw to the left, and a half circle by turning it to the right. Attention is directed to the carriage, in Fig. 2, as being adapted to most of the sprinklers manufactured, and as being found convenient in moving the sprinkler on the lawn as desired without being obliged to shut off

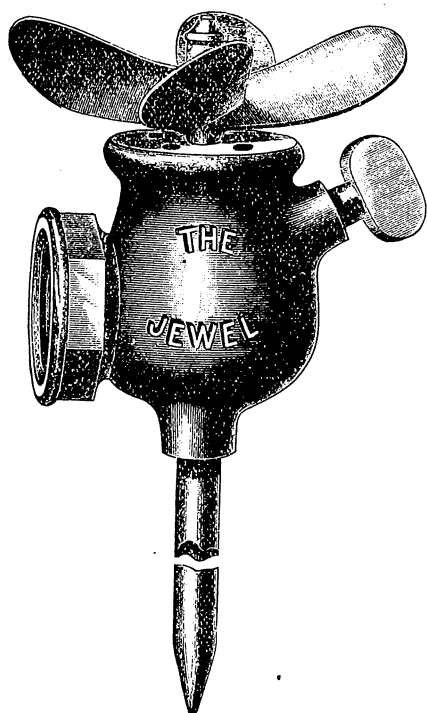


Fig. 1.—The Jewel Lawn Sprinkler.

each thread of the fabric to be traced, the threads are shown further apart than is customary in actual practice. In practice the threads lie as close together as possible and run directly transverse to the air tube. The point

Tack Salt Shaker.

Chicago Tack Company, 7700-7800 Woodlawn avenue, Chicago, are putting up carpet tacks in shakers, as shown in the accompanying illustration. The

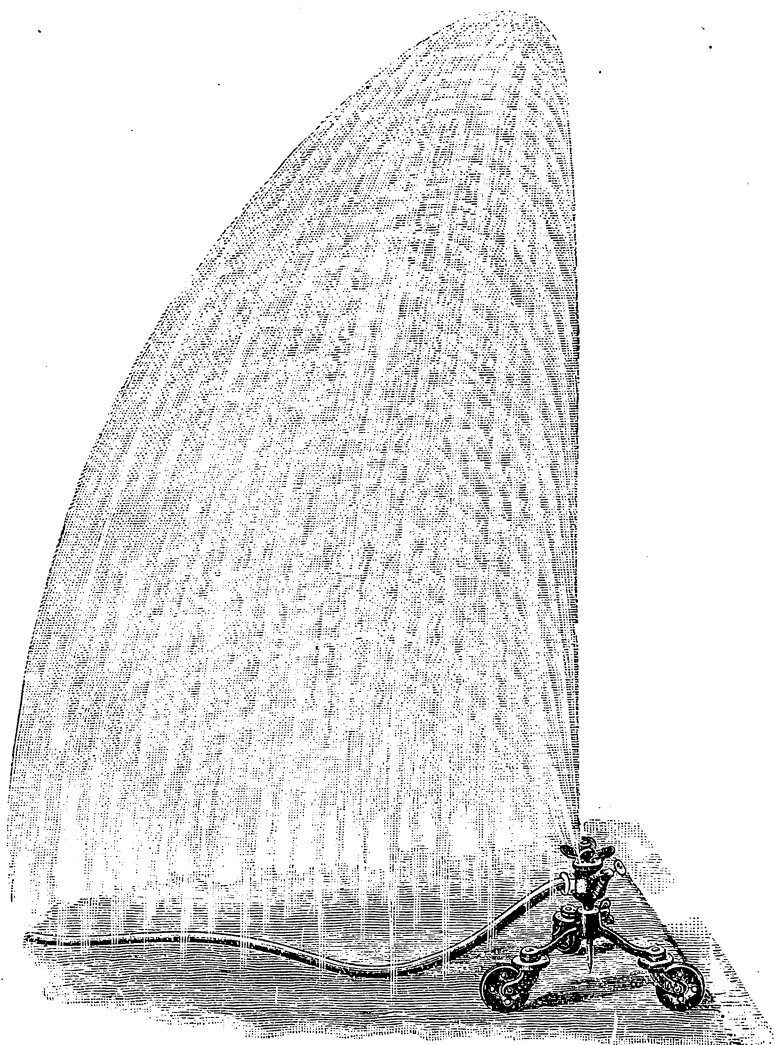
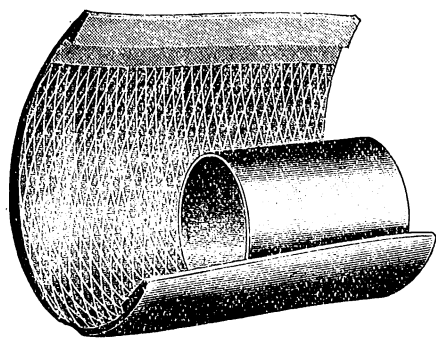


Fig. 2.—Jewel Sprinkler Throwing Half Circle.

the water. It can be moved by the aid of the hose or of a cord attached to the carriage.

New Bicycle Tire Fabric.

The cut given herewith illustrates a tire fabric brought out by the Rouse-

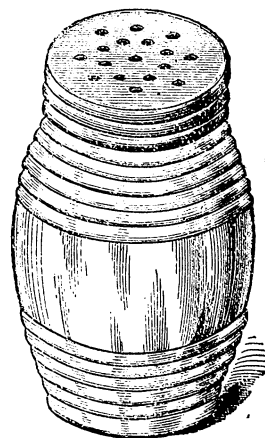


New Bicycle Tire Fabric.

Duryea Cycle Company, Peoria, Ill., which is the result of a year or more of experiment on their part. The cut shows the arrangement of the fabric quite fairly, but in order to permit

is made that at first thought it might appear that such a fabric is not so strong as a woven fabric; but it is explained that it is fully as strong, or even stronger, because, having no longitudinal threads to separate the transverse ones, the transverse threads may lie close together so that the entire weight of the fabric is utilized in holding the air pressure in the most advantageous position. It is stated that the success of the thread fabrics, both on the road and track, during the past year or two has led the manufacturers to adopt this net idea, consisting of transverse threads knotted together so as to prevent separation, as meeting the requirements fully. It is stated further that the shoe need not be thick, because, as the threads are knotted at very short intervals they cannot separate sufficiently to permit the air tube to protrude, and for this reason tires with this fabric can be made as light or lighter than tires with woven or other fabrics. It is explained that not only is the strain less on the fabric by having the threads placed transversely, but that each thread is free to yield to compression by obstacles in the road without straining or drawing upon its neighbor. This, it is stated, results in a transverse thread fabric resilient, flexible and lively.

shakers are of crystal glass, with metal tops, perforated for salt or pepper. The salt and pepper shakers are the same, except that the perforations in the cap of the pepper is smaller than



Tack Salt Shaker.

the salt. The shakers are designed for table use when emptied of tacks. The goods are packed, half salts and half peppers, in half gross cases, filled with carpet tacks made by the company,

which they refer to as being of fine quality. The packages are designed to retail at 5 cents each.

The Monarch Grate Guard.

The accompanying illustration represents a grate guard, introduced by the Cincinnati Mfg. Company, 211 Walnut street, Cincinnati, Ohio. As shown in Fig. 1, the guard is made from wire

pairers of all kinds. It is pointed out that the nails are cheaper than the tongue and groove, as they save a large waste of lumber, and that they drive more rapidly than the ordinary dowel.

Picture Hanger.

Julius Berbecker & Co., 65 Duane street, New York, are marketing the picture hanger or moulding hook as

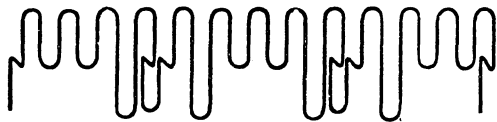


Fig. 1.—The Monarch Grate Guard.

rod of No. 4 gauge, so formed and bent as to readily admit of its being placed in position over the top bar of a grate, as in Fig. 2, to which it adds a depth of 3½ inches. The loops in the guard are placed sufficiently close to

here shown. These hooks are made in but one size and of one pattern, and it is claimed that they will fit any molding from 1 to 2 inches. One of the principal features to which attention is called is their adaptability to almost

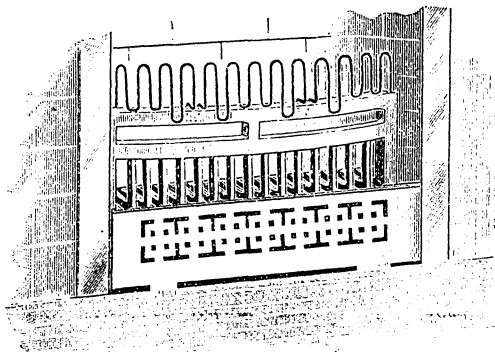
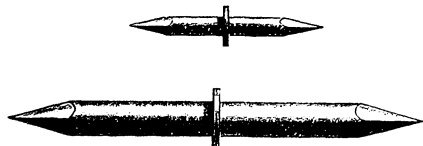


Fig. 2.—Grate Guard in Position.

each other to prevent the live coal from falling out. The guard is designed to provide an extra capacity for grates that are not deep enough to fulfill the requirements made upon them. The guards are made in four sizes, for 20, 22, 24 and 26 inch grates. The manufacturers claim that the guards are strong, light, durable and thoroughly practical.

Bond Nails.

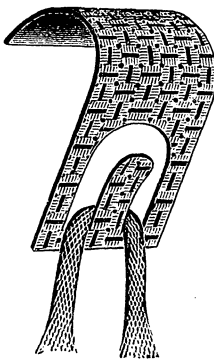
The Bond Nail Company, Raynham, Mass., are offering bond nails, as illustrated herewith. The nails are made from different sizes of steel wire with a point at each end and a head at any desired position between the points. It is explained that as no hole is required for them they may be readily driven with a hammer into soft wood, while



Bond Nails.

for hard wood a set is made to hold one end of the nail. The nails are designed for dowels and blind nails, or to fasten edges of boards together when too wide for an ordinary nail; also for the use of toy, furniture and box manufacturers, coopers, builders and re-

any molding, and at slight cost. They are made of steel, brass finished. Another point emphasized is that should a wire break or become detached the



Molding Hook or Picture Hanger.

wire will not draw through or allow the frame to fall.

Self Closing Vegetable Support.

Leonard, Lewis & Co., Utica, N. Y., for whom Wiebusch & Hilger, 84-86 Chambers street, New York, are sole agents, are introducing a vegetable support, as herewith illustrated. It consists of a galvanized wire hook 18 inches in diameter, upon which are double legs, each leg being made of one piece of galvanized wire. Three inches from the end of each leg the wire is

bent to form a shoulder to prevent the weight of the vine when loaded with fruit forcing the support into the ground. The hoop stands 17 inches



Fig. 1.—Self Closing Vegetable Support.

above the ground. In Fig. 2 the support is shown with the legs closed for storage, this being, it is stated, a feature peculiar to this support. The support is designed to take the place of

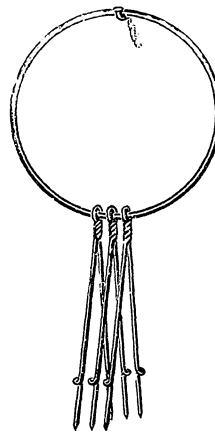
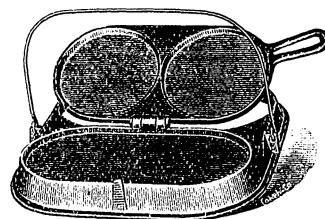


Fig. 2.—Support Closed for Storage.

racks for keeping tomatoes and the vines off and above the ground. Patents for the support are now pending.

Patent Cake Griddle.

The Wagner Mfg. Company, Sidney, Ohio, have put a cake griddle on the market, as illustrated herewith. These griddles are made in two sizes, for baking four or eight cakes at once, the one shown being the four cake size, which

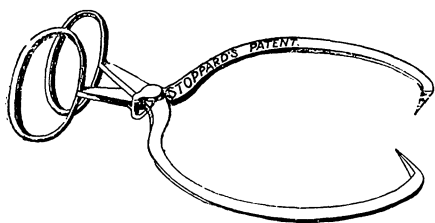


Patent Cake Griddle.

is especially adapted to gasoline stove use. Both sizes have raised bottoms allowing the heat to circulate freely and equally under all parts of the griddle. Either size may be used on any sized stove, with or without removing the lids.

Safety Ice Tongs.

T. G. Ellsworth, 85 Chambers street, New York, agent for Robert Stoppard, Auburn, N. Y., is introducing Stoppard's Safety Ice Tongs, as shown herewith. The safety stop is placed upon the tongs at the point where they are riveted together, to prevent them open-

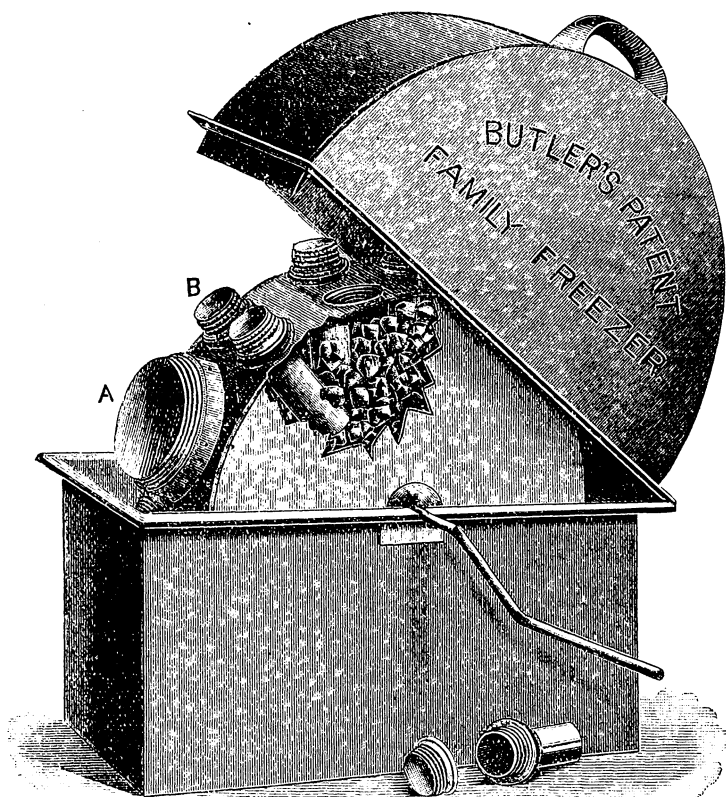


Safety Ice Tongs.

ing too far, serving as a protection to the hand of the operator and increasing the durability of the tongs, it is stated, at least one-half. The point is made that the stop does not increase the cost of the tongs. The tongs are made in four sizes: 14½, 16½, 24 and 26 inches.

Family Ice Cream Freezer.

T. G. Ellsworth, 85 Chambers street, as sales agent, is introducing the Butler-Kattenhorn & Ellsworth family ice cream freezer, as illustrated herewith. The freezer is constructed entirely of metal, the outside case and cover being of galvanized iron. The revolving drum is provided with holes having threaded flanges, which project into the drum



Family Ice Cream Freezer.

and form sockets, into which the threaded portions of the cream cups B fit. The cups are provided with covers, so as to hermetically seal them, preventing the brine from coming in con-

tact with the cream. A cup and cover is shown outside the case, near the bottom of the cut. The cups, as regularly made, are designed to hold a suitable quantity of cream to serve to an individual, or they may be made any de-

sired size. The freezer shown contains 22 cream cups, arranged in such a way, it is stated, as to be readily placed in the drum or removed from it. For filling the drum the cap A is removed and the drum is filled with ice and salt, and the cap screwed back again to its water tight position. A pulley is placed upon the larger machines when power is required to drive them. The freezer is designed for freezing individual creams, ices, custards, &c., and the point is made that as many different kinds may be frozen at once as there are cream cups, or that all the cups may be used for one kind.

Benedict's Improved Drilling Vise.

J. Benedict, Grand Rapids, Mich., is putting a drilling vise on the market,

rotary disk in section, showing how it is secured by the thumb screw. The vise is designed for use in machine shops for holding small, round and irregular pieces at any angle, while being drilled, or being ground on an

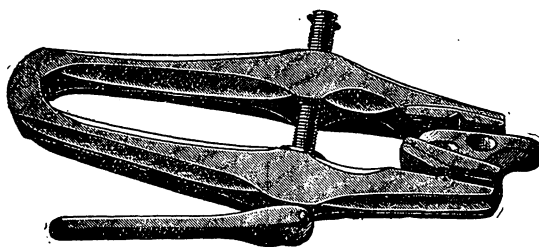


Fig. 1.—Benedict's Improved Drilling Vise.

emery wheel. It is remarked that the drilling vise will be found a handy

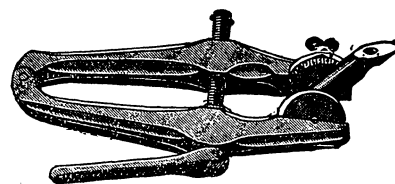


Fig. 2.—Drilling Vise with Rotary Disk.

tool, as by its use the difficulty of holding irregular and round pieces while drilling them is entirely over-

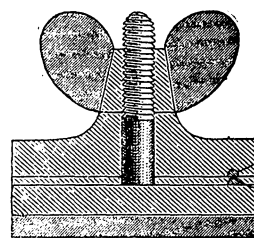


Fig. 3.—Sectional View of Rotary Disk.

come, the pieces being held firmly and squarely under the drill.

Lenox Sprayer.

Alford & Berkele Company, 77 Chambers street, New York, as sole

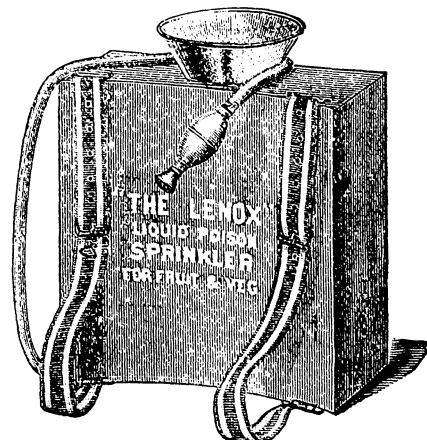


Fig. 1.—Liquid Poison Sprayer.

agents for Lenox Sprayer Company, Pittsfield, Mass., are introducing the sprayer illustrated in Figs. 1 and 2.

It is arranged so as to be carried on the back in the same manner as a knapsack. It is made substantially of galvanized iron, $14 \times 13\frac{1}{2} \times 6\frac{1}{2}$ inches in size, with a capacity of 22 quarts. The opening at the top seen in Fig. 1 is $5\frac{1}{2}$ inches across. The mixture passes through a brass wire gauze strainer, which excludes twigs, leaves, or other foreign substances. In one corner at the top are a number of small holes to prevent the formation of a vacuum. At the

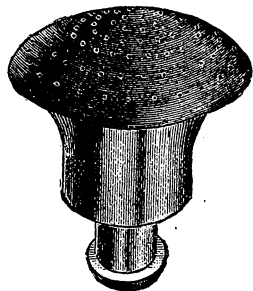


Fig. 2.—Metal Rose Attached to Tube for Sprinkling.

bottom a suitable rubber tube is attached, about 3 feet in length, and provided with a cut off for stopping the flow when necessary. Fig. 2 represents the rose usually sent, but two others are made for special purposes, which are furnished at an extra price. The sprayer is designed for spraying with Paris green or other mixture plants, vines, shrubs, &c., bearing flowers, fruits, vegetables, &c.

Derby Hat and Coat Rack.

The American News Company, 37-41 Chambers street, New York, as sole agents for the manufacturer, are introducing a coat and hat rack, as shown in Figs. 1 and 2. Fig. 1 illustrates the

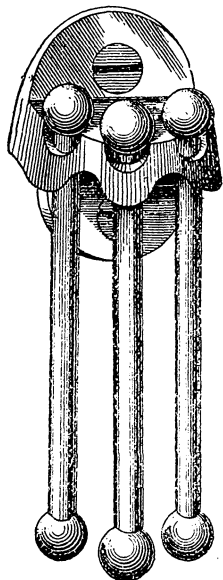


Fig. 1.—Hat and Coat Rack, Closed.

article in position, closed to economize space. Fig. 2 represents it extended, ready for use, which is accomplished by raising the arms, drawing them forward and allowing them to drop into the sockets provided for this purpose. The rods are made of Bessemer steel. The balls are fastened by three methods

—either riveted, screwed or swedged on. Ordinarily the rack is polished and nicked, but for nursery, bath-room, kitchen or similar uses, the balls are nicked on white metal and the

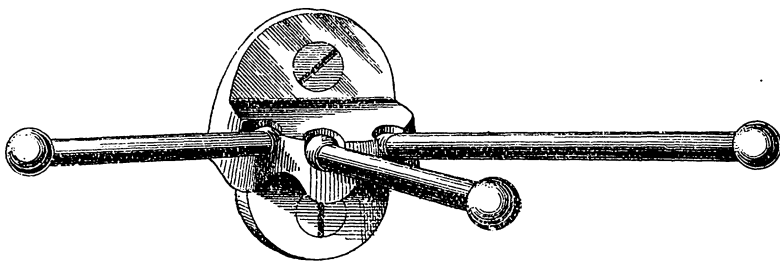


Fig. 2.—Hat and Coat Rack, Open Ready for Use.

arms enameled in black, red, blue or yellow. There are four sizes, with arms 5, 7, 10 and 14 inches long. An improvement about to be made, not shown in the cuts, is a short two-hook branch for overcoats, held in place by the lower bracket screw. The racks are packed with screws and all sizes sold at a uniform price.

Alaska Refrigerator Trap.

The accompanying cuts represent a new zinc trap used in the refrigerators of the Alaska Refrigerator Company, Muskegon, Mich. The trap, as shown in Fig. 1, measures $2\frac{3}{4}$ inches over all,

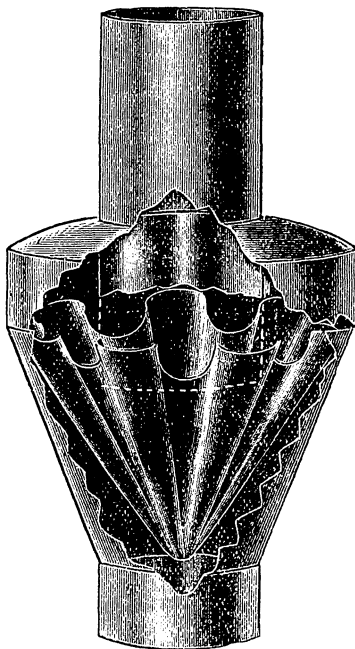


Fig. 1.—Alaska Refrigerator Trap.

and is placed in the provision chamber just beneath the ice chamber, where it may be easily reached to remove when necessary to clean. The waste water from the melting ice is obliged to rise in the center corrugated cup above the bottom of the lower end of the upper waste pipe, shown by dotted lines in Fig. 1, before it can overflow, thus preventing outside air ascending the waste pipe. It is explained that the shape of the corrugated cup is such that the overflow will follow down the outside to its point and drop through the cen-

ter of the lower waste pipe; also, that the cup keeps the water away from the outside shell, so that no moisture will collect on the outside of the trap. The manufacturers state that the waste-

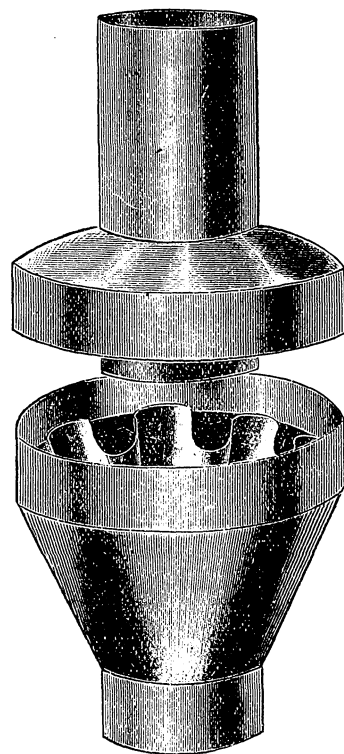


Fig. 2.—The Two Parts of Trap.

through the pipe, cleaning off all deposit that may collect.

HARRINGTON & KNIGHT of Fargo, North Dakota, have recently taken possession of their new quarters located in the R. S. Tyler block on Broadway. The store is 24×135 feet in size, the first 100 feet being used for the store proper, while the rear room, 24×35 feet, will be used as a shop this winter. The shelving, counters, &c., are of oak, finished in oil, and the shelving on both sides of the store is supplied with traveling ladders. The store is heated with a furnace and freight cars can be brought within 75 feet of the rear of the building. The entire establishment is fitted up in the most convenient manner.

C. K. LIDE and C. L. ODOM have formed a copartnership at Johnson City, Tenn., where they will continue the Hardware business formerly conducted by Mr. Lide. Mr. Odom will continue on the road as traveling salesman for W. W. Woodruff & Co. The general management of the new firm will be under the supervision of Mr. Lide.

JANUARY 10, 1894.

The character @ is used to indicate a range of price; thus discount 50&10@50&10&5 % signifies that the goods in question are sold at prices ranging from discount 50 and 10 % to discount 50 and 10 and 5 %.

Blue, case lots... 38 gr 75¢; small lots 80
Red, case lots... 38 gr 67¢; small lots, 72
White, case lots... 38 gr 50¢; small lots, 55

Halters—
 Cover's Add. Rope Halters.....40¢25
 Cover's Add. Web Halters.....55¢55
 Cover's Hemp Horse and Cattle Ties.....50¢10
 Cover's Jute Cattle Ties.....70¢10
 Cover's Jute Horse Ties.....70¢25
 Cover's Rope, 7-16-in. Jute.....70¢25
 Cover's Rope, 3/4-in. Hemp.....50¢25
 Cover's Rope, Jute.....60¢10
 Cover's Saddlery Works Halters.....33¢5
 Cover's Saddlery Works Handy Web Halters.....33¢5
 Cover's Saddlery Works Horse and Cattle Ties.....33¢5

Hammers—
Handled Hammers—
 Atha Tool Co.....50¢10
 Buffalo Hammer Co.....50¢10
 Humason & Beckley.....50¢10
 Verree.....50¢10
 Cheney's Claw.....40¢10
 Cheney's Machine & Siding.....50¢5
 C. Hammond & Son.....40¢10
 Magnetic Tack, Nos. 1, 2, 3, \$1.25, 1.50 & 1.75.....30¢10
 Maydole's, list Dec. 1, '85.....25¢10
 Peck, Stow & Wilcox.....35¢40
 Fayette R. Plumb.....40¢10
 Artisan's Choice, A. E. Nail.....40¢10
 Horseshoe Turning Hammers.....50¢
 Regular Y. & P. A. E. Nail.....50¢
 Other Hammers.....50¢10
 Nelson Tool Works.....40¢10
 Sargent's.....40¢10
 Warner & Nobles, new list.....25¢10

Heavy Hammers and Sledges—
 3 lb. and under.....\$1.40 75¢10
 5 to 6 lb.....15¢
 Over 5 lb.....\$3.00
 Wilkinson's Smiths.....10¢11

Handcuffs and Leg Irons—
 See Police Goods.

Handles—
Cross-Cut Saw Handles—
 Atkins', new list.....40¢
 Champion.....15¢
 Ely's Perfection.....\$ doz., \$3.00
 Sensible.....40¢

Iron, Wrought or Cast—
 Barn Door, \$ doz \$1.40.....10¢10
 Bronze Iron Drop Latches, \$ doz 70¢ net
 Chest and Lifting.....70¢70
 Door or Thumb.....10¢
 Nos. 1 2 3 4
 Per doz.....\$0.90 1.00 1.08 1.35 1.50

Jap'd Store Door Handles—Nuts, \$1.02, \$1.10, no plate, \$0.88.....net
 Roggin's Latches.....\$ doz 30¢35¢

Wood—
 Auger, assorted.....\$ gr 5.00
 Auger, large.....\$ gr 7.00
 File, assorted.....\$ gr 2.75
 Brad Axl.....\$ gr 2.00
 Apple Firmer Chisel, ass'd.....\$ gr 5.00
 Apple Firmer Chisel, large.....\$ gr 5.00
 Hickory Firmer Chisel, ass'd.....\$ gr 4.50
 Hickory Firmer Chisel, large.....\$ gr 5.00
 Socket Firmer Chisel, ass'd.....\$ gr 3.00
 Socket Framing Chisel, ass'd.....\$ gr 5.00
 Hammer, Hatchet, Axe, &c.....40¢40
 Hoe, Rake, Shovel, &c.....40¢40
 Pat. Auger, Douglass.....\$ set \$1.25
 Pat. Auger, Ives.....\$ set \$1.00
 Pat. Auger, Swan's.....\$ set \$1.00
 Saw and Plane.....40¢10
 J. B. Smith & Co.'s Pat. File.....50¢

Hangers—
 Barn Door, New England.....70¢70
 Barn Door, old patterns.....70¢70
 Barry.....50¢
 Best Anti-Friction.....60¢10
 Boss.....60¢10
 Carrier Steel Anti-Friction.....60¢10
 Champion.....60¢10
 Chicago Anti-Friction.....60¢10
 Climax Anti-Friction.....50¢55
 Cincinnati Nos. 1, \$2.25; 3, \$2.50; 4, \$2.50.....60¢60
 Crescent.....60¢60
 Cronk's Patent, Steel Covered.....50¢10
 Duplex (Wood Track).....60¢10
 Economy.....60¢10
 Hamilton Wrought Steel Track.....55¢
 Interstate.....60¢10
 Kiddier's.....50¢60
 Lane's New Standard.....50¢60
 Lane's Parlor.....40¢
 Lane's Standard.....50¢60
 Lundy Steel Parlor.....40¢
 Magic.....45¢10
 Matchless.....60¢10
 Moody.....45¢
 Moore's Baggage Car Door.....33¢4
 Moore's Elevator.....33¢4
 Moore's Railroader.....55¢
 Nickel, Steel, Nos. 0, \$25; 1, \$20; 2, \$15.....40¢10
 Orleans Steel.....55¢
 Paragon Nos. 5, 6, 7 and 8.....20¢10
 Peudulum, Payson's.....40¢40
 Perfection.....50¢10
 Richards'.....30¢10
 Samson Steel Anti-Friction.....55¢
 Star.....40¢10
 Stearns' Anti-Friction.....20¢10
 Stearns' Challenge.....25¢10
 Sterling.....60¢10
 Terry's Ideal.....60¢10
 Terry's Modern.....60¢10
 Terry's Shield.....60¢10
 Terry's Solid.....60¢10
 Terry's Wrought Single Strap.....60¢10
 Victor, No. 1, \$15.00; No. 2, \$18.50; No. 3, \$18.00.....20¢10
 Wild West.....45¢10
 Zmith for Wood Track.....55¢

Harness Snaps— See Snaps.
Hatchets—
 American Axe and Tool Co.....
 Blood's.....
 Hunt's.....40 & 10
 Hurd's.....@ 10
 Mann's.....40 & 10
 Peck's.....@ 5
 Underhill's.....
 C. Hammond & Son.....10¢
 Fayette R. Plumb.....
 Collins.....
 Buffalo Hammer Co.....
 Kelly's.....50 @ 50
 P. S. & W. Co.....@ 10¢
 Sargent's & Co.....
 Schulte, Loboff & Co.....
 Ten Eyck Edge Tool Co.....

Hay and Straw Nails—
 See Nails.

Hinges—
Blind Hinges—
 Clark's
 Nos. 1, 3, 5, 1868, Old Pattern.....75¢10
 Nos. 1 and 3, Tip Pattern.....75¢10
 No. 50, Buffalo Noiseless, 40, 60 and 65.....75¢
 Buffalo Reversible, Nos. 3, 2, 1, 1 and 0.....75¢5
 No. 1, Cottage, for wood only.....80¢10
 No. 1, Diamond, for wood only.....80¢5
 Dixie L. & P., Nos. 3, 2, 1, 1, 0, 00, 4 and 5.....75¢5
 No. 25, Empire Reversible.....75¢10
 Lull & Porter, Nos. 3, 2, 1, 1, 0, 00, 4 and 5.....75¢10
 Morley Gravity, Nos. 2, 4, 4, 6, 8, 9 and 10.....50¢
 Hunter.....50¢50
 Parker.....75¢10
 North's Automatic Blind Hinges, No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50.....10¢
 Reading's Gravity.....75¢10
 Sargent's Nos. 1, 3, 5, 11, 12, 13.....75¢10

Gate Hinges—
 Automatic.....\$ doz \$12.50, 50¢
 Clark's Nos. 1, 2, 3.....60¢10
 N. E. Reversible.....\$ doz \$7.80, 60¢10
 N. E. Reversible.....\$ doz \$5.60, 60¢10
 N. Y. State.....\$ doz \$4.90, 60¢10
 Western.....\$ doz \$4.20, 60¢10

Spring Hinges—
 Acme.....30¢
 American, Gem and Star.....20¢
 Bardley's Patent Checkling.....15¢
 Barker's Double Acting.....25¢
 Bommer's Japanned.....35¢
 Bommer's All other Kinds.....30¢
 Buckman's.....15¢20
 Champion.....60¢
 Chicago, No. 1.....\$ gr \$13.00
 Devore.....\$ gr \$13.00
 Empire and Crown.....20¢
 Freeport.....\$ gr \$12.00
 Geer's Spring and Blank Butts.....40¢
 Hero and Monarch.....55¢
 Ideal No. 3.....\$ gross \$10.00
 J. G. C. Covered.....\$ gr \$10.00
 New Idea Nos. 1 and 10.....\$ gross \$13.00
 New Idea Dbl. Acting.....45¢
 No. 10 Matchless.....60¢
 No. 25 Unbreakable.....60¢
 Oxford.....20¢
 Reliable.....\$ gr \$13.00
 Royal.....65¢
 Samson.....60¢60
 Stearns' Noiseless Floor Hinge, \$ set, \$5.00.....20¢10
 Union Mfg. Co.....25¢
 Union Spring Hinge Co.'s 150 March 1886.....25¢10
 U. S.....25¢10
 Wiles, No. 1, \$ gr \$16; No. 2.....\$13

Wrought Iron Hinges—
 List February 14, 1891.
 Corrugated Strap and T.....50¢10
 Strap and T.....50¢10
 Plate Hinges (8, 10 & 12 in.).....50¢
 "Providence" over 12 in.....50¢
 Rolled Blind Hinges, Nos. 32 and 34.....50¢10
 Rolled Blind Hinges, Nos. 232 and 234.....55¢10
 Rolled Plate.....70¢10
 Rolled Raised.....70¢10
 Screw Hook and Eye.....\$ in. \$ 75¢
 \$ 1/2 in. \$ 65¢
 \$ 3/4 in. \$ 55¢
 \$ 1 in. \$ 45¢
 \$ 1 1/2 in. \$ 35¢
 \$ 2 to 36 in. \$ 25¢

Hoes—
Eye—
 Am. Axe and Tool Co., S. & O. Pat.....60¢5
 Sandusky Tool Co., S. & O. Pat.....60¢10
 Chattanooga Tool Co., S. & O. Pat.....60¢10
 D. & H. Scovill.....20¢
 Grun's Crescent Planters' Pattern.....45¢5
 Lane's Razor Blade, Scovill Pattern.....30¢
 Maynard, S. & O. Pat.....45¢5

Handled—
 Garden Mortar, &c.....70¢70
 Magic.....\$ doz \$4.00
 Planter's Cotton, &c.....70¢70
 Warren Hoe.....60¢60

Hog Rings and Rings—
 See Rings and Rings.

Hoisting Apparatus—
 See Machines, Hoisting.

Hollow-Ware—
 See Ware, Hollow.

Holders—
Bag—
 Sprengle's Pat.....\$ doz \$18.....60¢

Bit—
 Angular.....\$ doz \$24.00, 40¢5
 Diagonal.....\$ doz \$24.00, 40¢
 extension.....
 Barber's.....\$ doz \$16.00.....40¢40
 Ives.....\$ doz \$20.00.....60¢60

File and Tool—
 Balz Pat.....\$ doz \$4.00, 25¢
 Nicholson File Holders.....20¢

Sash—
 Motley's Adj. Sash, Medium Size.....\$ doz \$1.20, 40¢

Hooks— Cast Iron—
 Bird Cage, Reading.....60¢10
 Bird Cage, Sargent's List.....60¢10
 Clothes Line, Sargent's List.....55¢10
 Clothes Line, Moore's.....70¢
 Clothes Line, Reading list.....60¢10
 Coat and Hat, Moore's.....70¢
 Coat and Hat, Reading.....60¢10
 Coat and Hat, Sargent's List.....55¢10
 Harness, Reading list.....55¢10

Wire—
 Atlas, Coat and Hat.....65¢
 Belt.....\$ doz \$15.00, 80¢20
 Handy Hat and Coat.....50¢10
 Indestructible Coat and Hat.....45¢10
 Steady Ceiling Hooks.....50¢10
 Williamson's Bird Cage Hooks, List April, 1892.....40¢
 Wire Coat and Hat, Gem, list April, 1886.....60¢10
 Wire Coat and Hat, Miles, list April, 1886.....80¢10
 Wire Coat and Hat, Standard.....60¢10
 Bright Wire Goods—See Wire.

Wrought Iron—
 Cotton.....\$ doz \$1.25
 Cotton Pat. (N. Y. Mallet and Handle).....80¢
 Tassel and Picture, T. & S. Mfg. Co.....60¢
 Wrought Staples Hooks, &c.....See Wrought Goods

Miscellaneous—
 Bush.....55¢60
 Fish Hooks, American.....60¢
 Grass, No. 2, \$2.00; No. 3, \$2.10; No. 4, \$2.25
 Hooks and Eyes—Brass.....60¢10
 Hooks and Eyes—Malleable Iron.....60¢10
 Nolin's Grass.....\$ doz \$2.25
 Whiffletree—Patent.....\$ doz \$2.25
 Bench Hooks—See Bench Staps.

Horse Nails— See Nails, Horse

Horse Shoes—
 See Shoes, Horse.

Hose, Rubber—
 Competition, Fair quality.....75¢75
 Competition, Low Grade.....80¢80
 Cotton Garden, 3/4 in., coupled.....7¢
 Fair Quality, \$ in.....8¢
 Good Quality, \$ in.....8¢
 Extra.....60¢10
 N. Y. B. & P. Co., Dundee.....60¢10
 N. Y. B. & P. Co., Extra.....40¢50
 N. Y. B. & P. Co., Para.....70¢10
 Standard.....70¢10

Huskies—
 Blair's Adjustable.....\$ gr \$2.00
 Blair's Adjustable Clipper.....\$ gr 7.00
 Hubbard's Solid Steel.....\$ gr 4.50

Indurated Fiber Ware—
 See Ware, Indurated Fiber.

Irons. Curling—
 Nicol's Patent Curling Iron Heater.....\$ doz.....1.00
 Silver Tipper Grace Darling Curling Iron.....\$ doz.....1.00
 No. 65.....\$1.75
 No. 66.....1.50
 No. 67, Mustache.....1.25

Sad—
 From 4 to 10, at factory.....\$ 100 D.
 B. B. Sad Irons.....\$ 30¢40
 Chinese Laundry (N. E. Butt Co.).....\$ 15¢
 Crown Improved.....60¢10
 Ideal Irons, new list.....50¢10
 Mahony's Troy Pot. Irons.....25¢
 Mrs. Potts' Sad Irons, per set:
 Small lots.....\$ 90 85 1.05 95
 National Self-Heating.....30¢
 New England.....5¢ 20¢20
 Salamander Irons.....25¢
 Self-Heating.....\$ doz \$18.00
 Self-Heating Tailors'.....\$ doz \$18.00
 Sensible, list Jan. '91.....60¢10
 Sensible Tailors' Irons.....33¢5

Soldering—
 Soldering Coppers.....\$ 19@21¢
 Cover's Adjustable, list Jan. 1, 1886.....35¢25
 Tinker's Dread.....\$ doz \$1.75; \$ gr \$18

Pinking—
 Pinking Irons, \$ doz., 55¢60¢.

Jack Screws— See Screws.

Jacks, Wagon—
 Daisy.....33¢45
 Lockport.....40¢
 Victor.....33¢5

Kettles—
 Brass, Spun, Plain, list Jan. 1, '91.....25¢5
 Brass, Spun, Pld. W. M. list Jan. 1, '91.....20¢
 Stamped Brass Kettles.....\$ 21¢
 Enameled and Tea—See Ware, Hollow.

Keys—
 Lock, Ass'n list Dec. 30, 1886.....65¢10
 Eagle, Cabinet, &c.....33¢45
 Hotchkiss' Brass Blanks.....40¢
 Hotchkiss' Copper and Tinned.....40¢
 Hotchkiss' Pad and Cab.....35¢
 Wollensak Tinned.....50¢10

Knife Sharpeners—
 See Sharpeners, Knife.

Knives—
Butcher, Shoe, &c.
 Ames' Bread Knives, \$ doz \$1.50, 15¢20¢
 Ames' Butcher Knives.....25¢
 Ames' Shoe Knives.....25¢30
 Foster Bros' Butcher, &c.....40¢
 Jordan's A. A. Butcher's, list.....net
 Moran's Shoe and Bread.....20¢20
 Nichols' Butcher Knives.....40¢10
 Wilson's Butcher Knives, list Dec 8, 1890.....25¢
 W. W. Wilson, Butcher, 6 in., \$2.00; 7 in., \$2.70; 8 in., \$3.80, &c.
 Hay and Straw—See Hay Knives.
 Table and Pocket—See Cutlery.

Corn—
 Bradley's.....10¢
 Wadsworth's.....25¢25

Drawing—
 Mix.....
 New Haven.....\$ 75¢75
 P. S. & W.....\$ 75¢75
 Winbury.....
 Adjustable Handle.....25¢33
 Bradley's.....35¢
 Douglass.....75¢75
 Merrill.....60¢10
 Wadsworth.....15¢15
 L. J. White.....20¢20
 Wilkinson's Folding.....25¢25

Hay and Straw—
 Carter's Needle.....\$ doz \$11.00, \$11.50
 Earth's.....\$ doz \$13.50, \$13.50
 Lightning, from jobbers.....\$ doz \$7.00, \$7.00
 Nolin's Hay.....\$ doz \$7.00, \$7.00
 Wadsworth's.....40¢75

Mining—
 Am. (2d quality), \$ gr., 1 blade, \$7; 2 blades, \$12; 3 blades, \$18.....net
 Buffalo Adjustable.....\$ doz \$3.00, 33¢44
 Knapp & Cowles.....50¢10
 Lathrop's.....20¢10
 Smith's, \$ doz., Single, \$2; Double \$3.....45¢60

Knobs—
 Bardley's Wood Door, Shutter, &c.....15¢
 Base, Rubber Tip.....70¢10
 Carriage, Jap.....\$ gr 80¢, 80¢10
 Door, Mineral.....60¢60
 Door, For Jap'd.....70¢75
 Door, For Nickel.....\$2.00, \$2.25
 Door, For Plated Nickel.....\$2.00, \$2.25
 Drawer, Porcelain.....60¢10
 Hemacite Door Knobs.....40¢10
 Picture, Hemacite.....35¢5
 Picture, Judd's.....60¢10
 Picture, Sargent's.....70¢10
 Shutter, Porcelain.....65¢10
 Yale & Towne Wood, list Dec., 1885.....40¢

Ladders.
 Davies Extension and Single.....20¢55

Ladies—
 Melting, P. S. & W.....35¢10
 Melting, Reading.....35¢10
 Melting, Sargent's.....60¢60
 Melting, Warners.....80¢

Lanterns—
Tubular—
 Anti-Friction, with Guard.....\$ doz \$4.50
 Brass Plated, Sq. Lift, Guard.....\$ doz \$5.50
 Cop. Plated, Sq. Lift, Guard.....\$ doz \$5.50
 O. K., with Guard.....\$ doz \$3.75
 Regular, with Guard.....\$ doz \$3.50
 Side Lift, with Guard.....\$ doz \$4.00
 Square Lift, with Guard.....\$ doz \$4.25

Bull's Eye Police—
 2 1/2-inch flash light.....\$ doz \$1.00
 3-inch flash light.....\$ doz \$4.50
 2 1/2-inch regular.....\$ doz \$3.60
 3-inch regular.....\$ doz \$3.90

Lawn Mowers—
 See Mowers, Lawn.

Leaders, Cattle—
 Hotchkiss.....30¢
 Humason, Beckley & Co.'s.....70¢
 Peck, Stow & W. Co.....60¢10
 Sargent's.....70¢10

Lemon Squeezers—
 See Squeezers, Lemon.

Lifters, Transom—
 Beardsley & Mouat, Sure Grip.....50¢
 Excelsior.....60¢10
 Payson's.....50¢10
 Universal.....60¢10
 Solid Grip.....60¢10
 Universal.....60¢
 Reiter's, list Feb. 20, 1891.....30¢
 Brass, Real Bronze or Nickel Plate.....30¢
 Bronzed Iron Rods.....60¢10
 Shaw's.....50¢10
 Wollensak's.....50¢

Lines—
 Chalk.....60¢
 Cotton and Linen Flash.....50¢
 Cotton Chalk.....55¢
 Mason's Colored Cotton.....45¢
 Mason's Linen, 24 ft., No. 1, \$1.25; No. 2, \$1.75; No. 3, \$2.25; No. 4, \$2.75; No. 5, \$3.25.....25¢
 Mason's Linen, No. 3, \$1.50; No. 4, \$2.00; No. 4, \$2.50.....50¢
 Ossawan Mills:
 Braided Chalk.....50¢
 Cotton Cloth Lines.....10¢
 Solid Braided Ventilator and Mason's Lines.....25¢
 Twisted Chalk.....60¢
 Samson Cotton, No. 4, \$2; No. 4, \$2.50.....10¢
 Silver Lake, Braided No. 0, \$6.00; No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50.....25¢
 Venturator Cord, Samson, Braided, White or Drab Cotton.....\$ doz \$7.50, 20¢
 Wire Clothes.....18 19 20
 100 ft.....\$3.50 \$3.00 \$2.50

Links, Open—
 Terry's—per doz.
 Nos. 1 2 3 4
 \$6.00 8.00 12.00 16.00

Locks, &c.—
Cabinet—
 Eagle, Gaylord Par.....list, March '84, rev.
 Ker and Corbin.....Jan. 1, '83, 33¢42¢
 Barnes Mfg. Co.....40¢10
 Delta, Nos. 36 to 39.....40¢10
 Delta, Nos. 51 to 63.....40¢10
 Delta, Nos. 87 to 98.....30¢
 Champion Night Latches.....40¢
 Eagle and Corbin Trunk.....25¢10
 Champion Cab. and Comb.....33¢5
 Roman's.....25¢
 Yale.....net prices

Door, Locks, Latches, &c
 Lower net prices often made on Door Locks.

Barnes Mfg. Co.....40¢10
 Britain, Graham & Mathes, list Jan. 1, '89.....60¢10
 Brooklyn Latches.....50¢10

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Door, Locks, Latches, &c
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Deltz Flat Key.....30%
Mallory, Wheeler & Co. list July, '88.
6C 10@70%
Plate.....33%
Romer's Night Latches.....15%
R. & C. Mfg. Co., list Mar. 20, 1889.
60C@10@70%
Sargent & Co. Lds. At. 1.75 60C@10@70%
Warner's Burglar Proof. # doz. \$3.00, 50%
Yale.....net prices

Elevator—

Moore's.....33%
Padlocks—

List June 10, 1891.....50%
Ames Sword Co. up to No. 150.....40%
Ames Sword Co. above No. 150.....50%
Barnes Mfg. Co.....40@40@10%
Champion Padlocks.....40%
A. E. Deltz.....40%
Eagle.....40%
Eureka, Eagle Lock Co.....40%
E. T. Fraim's Keystone Scandinavian.
1010 line.....90@40%
120 line.....90@25%
109 line.....65%
510 line.....70%
225, 610 and 200 lines.....70%
All other numbers.....50%
Horsehoe.....# doz \$9, 50@50@10%
Hotchkiss.....30%
No. 3.....30%
Norwich Lock Mfg. Co., old list.....50%
Romer's Nos. 60 & 1.....30%
Romer's Scandinavian & Co., Nos. 100 to
505.....15%
Scandinavian.....90@50%
Slaymaker, Barry & Co.
No. 1010 line.....90@50%
No. 41 line.....60%
No. 61 line.....60%
No. 21 line.....60%
Star.....60%
Yale Lock Mfg. Co.'s.....net prices

Sash, &c.—

Attwell Mfg. Co.....25@33%
Champion Safety list January, 1893, 70%
Clark's No. 1, 101; No. 2, 33 # gr.....33%
Common Sense, Jap'd, Cop'd.....gr \$4.00
Erzed.....
Common Sense, Nickel Plated.....gr \$10.00
Corbin's Daisy, list Feb. 15, 1888.....70%
Davis Bronze, Barnes Mfg. Co.....60%
Ferguson's.....33%
Fish (Jesse's), No. 100, # gr.....33%
No. 105 # gr.....70%
Giant, list Jan. 1892.....70%
Hammond's Window Springs.....40%
Hugunin's New Sash Locks.....25@50%
Hugunin's Sash Balances.....25@50%
Ives' Patent.....60@10@50%
Kempshall's Safety.....60%
Kempshall's Model.....60@60@10%
Monarch.....60%
Payson's Perfect.....60@10@10%
Reading.....60@10@60%
Security.....70%
Universal.....60@10@25%
Walker's.....10%
Wolcott's.....60@10@25%

Lumber Tools—

See Tools, Lumber.

Lustro—

Four-ounce bottles.....# doz, \$1.75; #
gross.....\$17.00

Machines.

Boring—

Without Augers. Upright. Angular.

Douglas.....\$5.50 \$6.75.....50%
Jennings.....5.50 6.75.....50@50%
Snell's, Rice's Pat.....5.50 6.75.....40@10%
Other Machines.....2.25 2.50.....
Soss, Carpenters.....3.80
Ross, Ship Bldrs'.....3.85
Phillips' Patent.....
with Auger.....7.00 7.50.....
Millers Falls.....7.50.....25%

Fluting—

American, 5 in., \$3.00; 6 in., \$3.40; 7 in.
\$4.50 each.....35%
Combined Fluter and Sad Iron.....30%
Crown, 4 1/2 in., \$3.50; 6 in., \$4.00; 8 in.
\$6.00 each.....35%
Crown Hand Fluter, Nos. 1, \$15.00; 2,
\$12.50; 3, \$10.00; 4, \$8.25.....30%
Crown Jewel, 6 in.....\$3.50 each, 35%
Domestic Fluter.....each, \$1.50
Eagle, 4 1/2-inch Roller, \$2.15.....35%
Eagle, 5 1/2-inch Roller, \$2.85.....35%
Geneva Hand Fluter, White Metal.....
doz \$12, 25%
Knox, 4 1/2-inch Roller.....\$3.25 each 35%
Knox, 6-inch Roller.....\$3.60 each 35%
Shepard Hand Fluter, No. 85, per doz
\$15.50.....40%
Shepard Hand Fluter, No. 95, # doz.....40%
\$8.00.....40%
Shepard Hand Fluter, No. 110, # doz
\$11.00.....40%

Holisting—

Moore's Anti-Friction Differential Pulley
Block.....20%
Moore's Hand Holist, with Lock Brake.....20%
Moore's Rope Differential Pulley
Block.....60%
Maris & Beekley (Teal Patent).....30%
See also Blocks.

Washing—

Fair and Square.....# doz \$42.00
Anthony Wayne.....# doz, No. 1, \$42; No.
2, \$36; No. 3, \$42.
Wayne American.....# doz \$36.00
Wellsell.....# doz \$64.00
Western Star # doz, No. 2, \$36; No. 3
\$39

Mallets—

B. & L. Block Co., Hickory & L. V.
30@30@10%
Hickory.....20@10@50@10%
Lignumvite.....20@10@50@10%

Mattocks—Regular list.

60@10@60@10@5%

Measures—

Standard Fireware, No. 1, peck #
dozen, \$3.50; 1/4-peck, \$3.00

Meat Cutters—

See Cutters, Meat.

Menders, Harness—

*Per doz.....\$2.00

Milk Cans—See Cans, Milk.

Mills—

Coffee—

Box and Side, list Jan. 1, 1888. 60@60@5%
Net prices are often made which are
lower than above discount.

American, Enterprise Mfg. Co., list Jan.
17, 1893.....20%
The Swift, Lane Bros.....30%
Waddell's New Box Mills, Ideal
Brand, New List.....60%

Mincing Knives—

See Knives, Mincing.

Molasses Gates—

See Gates, Molasses.

Money Drawers—

See Drawers, Money.

Mowers, Lawn—

Out of Season.

Muzzles—

Safety.....# doz, \$3.00, 25%

Nails—

Cut and Wire. See Trade Report.

Wire Nails, Papered.

Association list, May 1, '92.....85@5%
Tack Mfrs' list.....70@5@70@10%
Hungarian, Finishing, Upholsterers', &c.
See Tacks.

Horse—

Nos. 6 7 8 9 10

A. C.....25 23 22 21 20 40@10%
American.....9 9 9 9 9 9 40@10%
Anchor.....23 21 20 19 18 35%
Ausable.....28 26 25 24 23 40@5@25%
Capewell.....19 18 17 16 15 14 40%
O. B. K.....25 23 22 21 20 40%
Champion.....25 23 22 21 20 10@10%
Chaplain.....28 26 25 24 23 40@5@25%
Clinton, Fin.....19 17 16 15 14 40@5@25%
Empire Bronzed.....13@14 50%
Essex.....28 26 25 24 23 40@10@50%
Lyra.....9 9 9 9 9 9 40@10%
Maud S.....25 23 22 21 20 50@10@5%
Northwest'n.....25 23 22 21 20 25@25@5%
Putnam.....23 21 20 19 18 15%
Snowed.....9 9 9 9 9 9 40@10%
Standard.....23 21 20 19 18 35%
Vulcan.....23 21 20 19 18 25%
Western.....23 21 20 19 18 50%

Picture—

Brass Head, Combination list.....50@10%
Brass Head, Sargent's list.....50@10%
Combination Head, Sargent's list.....40@10%
Porcelain Head, Sargent's list.....50@10%
Niles' Patent.....40%

Nail Pullers—See Pullers, Nail.

Nail Sets—See Sets, Nail.

Nut Crackers—

See Crackers, Nut.

Nuts—List Dec. 18, 1889.

Square. Hex.

Cold Punched.....5.00 5.10 off list
In packages of 100 lb, add 1-10% # lb,
net; in packages less than 100 lb, add
1/4% # lb, net.

Hot Pressed.....5.80 6.50 off list

Oakum—

Best or Government.....# doz \$4.75
Navy.....# doz \$5.12
U. S. Navy.....# doz \$5.06

Oil Tanks—See Tanks, Oil.

Oilers—

Zinc and Tin.....65@10@70@5%
Pratt and C. Copper.....50@10@50@10%
Broughton's Brass.....60%
Broughton's Zinc.....60%
Malleable, Hammers' Improved, No. 1,
\$3.80; No. 2, \$4.00; No. 3, \$4.40 # doz.
10@10@5%
Malleable, Hammers' Old Pattern, same
list.....40%
Olmead's Brass and Copper.....40%
Olmead's Tin and Zinc.....60%
Prior's Pat. or "Paragon" Brass.....50%
Prior's Pat. or "Paragon" Zinc.....60@10@10%
Steel, Draper & Williams.....50%
Willott & Hobbs Mfg. Co., Steel and
Rust.....60%

Openers, Can—

American.....# gross \$1.75 @ \$2.00
Champion.....# doz \$2.00.....50%
Domestic.....# doz \$2.00.....45%
Duplex.....# doz 25, 15@20%
Eureka.....# doz \$2.50, 10%
Excelstor, No. 1 \$2.50; No. 2, \$1.50.....40%
Lyman's.....# doz \$3.75, 20%
Messenger's Comet.....# doz \$3.00, 25%
Moore's.....# doz \$2.25, 55@60%
No. 4, French.....# gr \$6.00, 45@50%
Sardine Selsors.....# doz \$2.75 @ 3.00
Sprague, No. 1, 55¢; 2, 60¢; 3, 65¢;
Star.....# doz \$2.75
Universal.....# doz \$3.00.....55@5%
World's Best # gross, No. 1, \$12.00;
No. 2, \$24.00; No. 3, \$36.00.....50@10%

Packing, Steam—

Rubber—

Standard, fair quality.....70@70@10%
Inferior quality.....75@80%
Extra.....60@60%
Jenkins' Standard.....# doz \$8.00.....25@25@5%
N. Y. B. & P. Co., Empire.....60%
N. Y. B. & P. Co., Salamander.....25%
N. Y. B. & P. Co., Standard.....50%

Miscellaneous—

American Packing.....10@11 1/2 # lb
Cotton Packing.....15@17 1/2 # lb
Italian Packing.....13@14 1/2 # lb
Jute.....7@8 # lb
Russia Packing.....14 # lb

Pails—

Creamery—

S. S. & Co., 18-qt., \$7.00; 20-qt., \$7.25
doz.....5%

Galvanized—

Quarts 10 12 14

Central Stamping Co.....2.50 2.75 3.00
Eureka Buckets.....2.75 3.25 3.50
Elli's Heavy Weight, # doz.....3.00 3.25 3.75
Hill's Light Weight, # doz.....\$2.75 3.00 3.25
Iron Clad.....2.50 2.75 3.00
Sidney Shepard & Co.....2.50 2.75 3.00
Buckets—See Well Buckets.

Indurated Fiber Ware

Fire Pails, deep.....# doz \$4.80
Fire Pails, round bottom.....# doz \$5.40
Milk, 14 qt.....# doz \$5.40
Stable, 14 qt.....# doz \$6.00
Star Pails, 12 qt.....# doz \$4.20

Standard Fiber Ware—

Buggy Pails.....Plain, Deer'd
Chamber Pails.....14 qt.....4.00 \$7.00
Dairy Pails, 14 qt., # doz.....3.75 4.25
Fire Pails, No. 1, 12 qt., # doz.....3.75
Fire Pails, No. 2, 14 qt., # doz.....4.25
Horse Pails.....4.00 8.50
Slop Jars (bal. trap).....7.50 5.50
Sugar Pails.....# doz \$3.15 3.75
Water Pails, 12 qt., # doz.....3.15 3.75

Pans—

Dripping—

Large sizes.....# doz \$5
Small sizes.....# doz \$5 1/2
Silver & Co. (Covered).....40%

Fry—

Standard List:

No.....1 2 3 4 5 6 7 8 9 10
doz.....\$3.00 \$3.75 \$4.25 4.75 5.25 5.75 6.25 6.75 7.25 7.75
No.....# doz.....\$6.00 \$7.00 \$8.00 \$9.00
Polished, regular goods.....75@75@10%
Acme Fry Pans.....60@5%

Dust—

Steel Edge, No. 1.....# doz \$1.75

Roasting and Baking—

Columbian, S. S. & Co.: Nos. 10, \$2; 20,
\$2.25; 30, \$2.50 each.....60@10%

Paper and Cloth—

Sand and Emery—

List April 19, 1888.....50@10@50@10%
Sibley's Emery and Crocus Cloth.....30%

Parers—

Apple—

Advance.....# doz \$4.75
Baldwin.....# doz 5.25
Bonanza.....each 5.00
Daisy.....each 5.00
Dandy.....each 7.50
Eclipse.....# doz 4.00
Eureka, 1888.....each 18.00
Family Bay State.....# doz 12.00
Favorite.....# doz 5.00
Gold Medal.....# doz 4.00
Improved Bay State.....# doz 27.00@30.00
Little Star.....# doz 4.50
Monarch.....# doz 13.50
New Lightning.....# doz 5.50
Orion.....# doz 4.00
Penn.....# doz 3.00
Piedmont.....# doz 4.00
Pomona.....# doz 4.00
Reading 72.....# doz 4.25
Reading 78.....# doz 7.00
Rocking Table.....# doz 6.00
Turn Table.....# doz 4.50
Victory.....# doz 13.50
Waverly.....# doz 4.00
White Mountain.....# doz 4.00

Potato—

Antrim Combination.....# doz \$5.50
Hoosier.....# doz \$13.50
Saratoga.....# doz \$5.50
White Mountain.....# doz \$4.50

Pencils, Soapstone—

See Crayons.

Pickers, Fruit—

Prize Fruit Pickers.....50%

Picks—

Railroad or Adze Eye, 5 to 6, \$12.00; 6
to 7, \$13.00.....60@10@50@10@10%
To 7, \$13.00.....60@10@50@10@10%

Picture Nails—

See Nails, Picture.

Pinking Irons—

See Irons, Pinking.

Pins—

Humason, Beckley & Co.'s.....60@10%
Perg. Stow & W. Co.'s.....50@10@50@10%
Sargent & Co.'s, \$17 and \$18.....60@10%

Escutcheon—

Iron, list Nov. 11, 1885.....50@10@50@10%
Brass.....60@80@5%

Pipe, Wrought Iron—

1 1/2 and under, Plain.....list April 13, 1893.
1 1/2 and under, Galv.....57@10%
1 1/2 and over, Plain.....57@10%
1 1/2 and over, Galv.....57@10%
Boiler Tubes, list Oct. 24, 1892.....65@10%
Casing, list Nov. 10, 1892.....52@10%
Cold Drawn Seamless Steel Tubing.....50%
Inserted Joints Casing, list Nov. 10,
1892.....47@5%
Steel Boiler Tubes.....37@5%

Planes and Plane Irons—

Wood Planes—

Molding.....40@10%
Bench, First quality.....45@10%
Bench, Second quality.....50@10%
Bailey's (Stanley R. & L. Co.).....50@10%

Iron Planes—

Bailey's (Stanley R. & L. Co.).....50@10%
Birmingham Plane Co.....30@60@5%
Chapman's Iron Planes.....50@50%
Davis' Iron Planes.....50@50%
Gage Tool Co.'s Self-Setting.....20@10@10%
Meriden Mal. Iron Co.'s.....50@50%
Miscellaneous Planes (Stanley R. & L.
Co.).....25@10%
Sargent & Co.'s.....60@10%
Standard Tool Co.....60@10%
Steers' Iron Planes.....50@50%

Plane Irons—

Abnurn Thistle.....30@10@30@10@10%
Buck Bros.....# doz \$5.00 @ \$5.35 to a

Ohio.....30@10@30@10@10%
Sandusky.....50@10%
Stanley R. & L. Co.....50@10%
L. & J. White.....25%

Plates—

Fellose.....# doz \$6 @ \$1 1/2

Pliers and Nippers—

Button's Patent.....60%
Carew's Pat. Wire Cutters.....20%
Cronk's 3 in., \$15.00; 10 in.....\$20
Cronk's Button Pattern.....50@10@50%
Cronk's Carrier Pliers.....60@80@5%
Eureka Pliers and Nippers.....40%
Gas Pliers.....60%
Gas Pliers, Custer's Nickel Plated.....60@5%
Hall's No. 2, 5 in., \$13.50; No. 4, 7 in.,
\$21.00 # doz.....40%
Humason & Beckley Mfg. Co. 50@50@10%
Lindsay's Giant.....33%
Morris's Parallel, # doz, \$12.00.....30@5%
P. S. & W. Castles Goods.....50@60%
P. S. & W. Timmers' Cutting Nippers,
add 6%.....10%
Russell's Parallel.....25%

Plumbs and Levels—

Regular list.....75@10@75@10@10%
Cook's.....40@10%
Davis Inclinoimeters.....10@10%
Davis Iron Levels.....30%
Disston's.....50%
Pocket Levels.....70@10@70@10@10%
Stanley's Duplex.....20@10%
Stanley's Handy.....20@10%

Poachers, Egg—

Buffalo Steam Egg Poachers, # doz.
No. 1, \$6.00; No. 2, \$9.00.....33%
Silver & Co., 6-Ring, # doz, \$4.00; 3-
Ring.....\$2.00

Pokes, Animal—

Bishop's American.....# doz \$3.00
Bishop's K. L. L.....# doz \$8.00
Bishop's Monarch.....# doz \$4.50
Bishop's Pioneer.....# doz \$4.00
Bolding.....# doz \$9.00
Buckeye, Single Stale.....# doz \$2.75
Eagle, Double Stale.....# doz \$5.75
Eagle, Single Stale.....# doz \$3.75
Metallic Horse Poke.....# doz \$6.00

Police Goods—

Daley's Improved Handcuffs, 2 Hands,
Polished, # doz, \$48.00; Nickle,
\$72.00; 3 hands, Polished, # doz,
\$72.00; Nickle, \$84.00.....25%
J. P. Lovell's Police Goods.....# doz \$5.00
R. I. Tool Co., Handcuffs, \$15.00 # doz 10%
R. I. Tool Co., Leg Irons, \$25.00 # doz 10%
Towers's.....25%

Polish—

Metal—

Gaston's Silver Compound.....33%
Prestoline.....30%
Prestoline Paste.....33%

Stove—

Black Eagle Benzine Paste, 5 and 10 lb
cans.....12 1/2%
Black Flag.....# gro \$7.20
Black Flag, 5 and 10 lb pails.....# lb 12%
Black Flag, 1 lb pail, in 10 pails, # lb 12%
Black Jack Water Paste, 5 and 10 lb
cans.....12 1/2%
Bonnell's Liquid Stove Polish, # gro \$9.00
Bonnell's Paste Stove Polish, # gro \$9.00
Boynton's Noon Day.....# gro, \$13.00
Crown Paste.....# doz \$12
Crown Paste in 5 and 10 lb pails, # lb 12%
Diamond O. K. Enamel.....# gro \$19.00
Diamond Rock Nickel Cleaner.....# gro \$10 20
Joseph Dixon's.....# gro, \$9.00, 10%
Dixon's Plumbago.....# lb 8%
Eclipse.....# gro \$2

Pullers Nail—

Eclipse.....	70 doz., \$24.00, 40%
Economy.....	70 doz., \$24.00, 40%
Giant, No. 1.....	70 doz., \$18.00, 10%
Giant, No. 2.....	70 doz., \$15.00, 10%
Pellcan.....	70 doz., \$9.00, 25%
Scranton.....	70 doz., \$18.00, 33%

Pulleys—

Brass Screw.....	70%
Hay Fork, "Anti-Friction," 5 in. solid.....	\$5.70
Hay Fork, "F" Common and Patent Bushed.....	20%
Hay Fork, Moore's Anti-Friction 5 in. Wheel.....	\$12.00
Hay Fork, Reed's Self-Lubricating.....	60%
Hay Fork, Solid Eye, 4.00; Swivel.....	\$4.50
Hay Fork, Tarbox Pat. Iron.....	20%
Hot House, Awning, &c.....	60%
Japanned Clothes Line.....	60%
Japanned Serr.....	60%
Japanned Side.....	60%
Moore's Ceiling or End, Anti-Friction.....	40%
Moore's Dumb Waiter, Anti-Friction.....	50%
Moore's Electric Light.....	33%
Moore's Side, Anti-Friction.....	50%
Sams (Auger Mortise).....	60%
Common Sense.....	60%
Empire.....	60%
Acme.....	60%
Ideal, Nos. 2, 4, 10 & 15.....	30% less 1¢ doz net.
Star.....	60%
Ideal, Nos. 25 and 55.....	70 doz, 22¢ net.
On bbl. lots extra 5%.....	
Shade Rack.....	45%
Shepard's Niagara, No. 25.....	70 doz 23¢ net
Tackle Blocks—See Blocks.....	

Pumps—

Cistern, Best Makers.....	60 doz 80¢10%
Pitcher Spout, Best Makers.....	87¢ doz 10%
Pitcher Spout, Cheaper G'ds.....	75¢ doz 10%
Myers' Pumps, low list.....	50%

Punches—

Avery's Revolving.....	40%
Avery's Sawset and Punch—See Sawsets.....	
Bemis & Call Co.'s Cast Steel Drive.....	50¢ doz
Bemis & Call Co.'s Check.....	50¢ doz
Bemis & Call Co.'s Spring.....	50¢ doz
Bemis & Call Co.'s Springfield Socket.....	45%
Niagara Hollow Punches.....	20¢ doz
Niagara Solid Punches.....	55%
Rice Hand Punches.....	15%
Saddler's or Drive, good.....	70 doz, 60¢ doz
Spring, good quality.....	70 doz, \$2.50 doz
Spring, Leach's Pat.....	15%
Solid Timmers, P., S. & W. Co., 70 doz.....	\$1.44
Timmers' Hollow Punches, P., S. & W. Co.....	20¢ doz

Rail—

Barn Door, Light, In. 1/4, 3/4, 1, 1 1/4, 1 3/4, 2, 2 1/4, 2 3/4, 3, 3 1/4, 3 3/4, 4, 4 1/4, 4 3/4, 5, 5 1/4, 5 3/4, 6, 6 1/4, 6 3/4, 7, 7 1/4, 7 3/4, 8, 8 1/4, 8 3/4, 9, 9 1/4, 9 3/4, 10, 10 1/4, 10 3/4, 11, 11 1/4, 11 3/4, 12, 12 1/4, 12 3/4, 13, 13 1/4, 13 3/4, 14, 14 1/4, 14 3/4, 15, 15 1/4, 15 3/4, 16, 16 1/4, 16 3/4, 17, 17 1/4, 17 3/4, 18, 18 1/4, 18 3/4, 19, 19 1/4, 19 3/4, 20, 20 1/4, 20 3/4, 21, 21 1/4, 21 3/4, 22, 22 1/4, 22 3/4, 23, 23 1/4, 23 3/4, 24, 24 1/4, 24 3/4, 25, 25 1/4, 25 3/4, 26, 26 1/4, 26 3/4, 27, 27 1/4, 27 3/4, 28, 28 1/4, 28 3/4, 29, 29 1/4, 29 3/4, 30, 30 1/4, 30 3/4, 31, 31 1/4, 31 3/4, 32, 32 1/4, 32 3/4, 33, 33 1/4, 33 3/4, 34, 34 1/4, 34 3/4, 35, 35 1/4, 35 3/4, 36, 36 1/4, 36 3/4, 37, 37 1/4, 37 3/4, 38, 38 1/4, 38 3/4, 39, 39 1/4, 39 3/4, 40, 40 1/4, 40 3/4, 41, 41 1/4, 41 3/4, 42, 42 1/4, 42 3/4, 43, 43 1/4, 43 3/4, 44, 44 1/4, 44 3/4, 45, 45 1/4, 45 3/4, 46, 46 1/4, 46 3/4, 47, 47 1/4, 47 3/4, 48, 48 1/4, 48 3/4, 49, 49 1/4, 49 3/4, 50, 50 1/4, 50 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Snaps, Harness, &c.

Anchor (T. & S. Mfg. Co.)	50¢
Fitch's (Bristol)	50¢
Hutchins	10¢
Andrews	10¢
Sargent's Patent Guarded	70¢ to 10¢
German, new list	40¢ to 10¢
Covert	50¢ to 10¢
Covert, New Patent	50¢ to 10¢
Covert, New R. E.	60¢ to 10¢
Covered Spring	60¢ to 10¢
Covert's Saddlery Works' Triumph	33¢
John Protz Snaps	75¢ to 75¢
Kelley & Woolworth's Steel Harness	50¢ to 10¢

Snaths—

Scythe	50¢ to 20¢ to 50¢ to 25¢
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Soldering Irons—

See Irons, Soldering.

Spittoons, Cuspidors, &c.**Standard Fiberware—**

Cuspidors, 8 1/4 inch, # doz., No. 5, \$8; No. 5X, \$9.	
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Spittoons, Daisy, 8-inch, No. 1, 1; 10 and 11 inch, \$5.	
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Spoke Shaves—

See Shaves, Spoke.

Spoke Trimmers—

See Trimmers, Spoke.

Spoons and Forks—**Tinned Iron—**

Basting, Cen. Stamp, Co.'s list	70¢ to 10¢
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Salt Table and Tea, Cen. Stamp, Co.'s list	70¢ to 10¢
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Buffalo, S. & Co.	33¢ to 25¢
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Silver Plated—

4 months or 5¢ cash 30 days:

Meriden Brit. Co., Rogers	40¢ to 15¢
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Rogers & Hamilton	40¢ to 15¢
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C. Rogers & Bros.	40¢ to 15¢
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Rogers & Bros.	40¢ to 15¢
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Reed & Barton	40¢ to 15¢
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Wm. Rogers Mfg. Co.	40¢ to 15¢
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Simpson, Hall, Miller & Co.	40¢ to 15¢
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Holmes & Edwards Silver Co.	40¢ to 15¢
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L. Boardman & Son	50¢ to 12¢
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Miscellaneous—

Holmes & Edwards Silver Co.	50¢ to 10¢
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No. 37 Mexican Silver	50¢ to 10¢
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No. 30 Silver Metal	50¢ to 10¢
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No. 24 German Silver	50¢ to 10¢
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No. 50 Nickel Silver	50¢ to 10¢
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No. 49 Nickel Silver	50¢ to 10¢
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Wm. Rogers Mfg. Co.	50¢ to 10¢
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Rogers' Silver Metal	50¢ to 10¢
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18% Rogers' Silver	50¢ to 10¢
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25% Rogers' Nickel Silver	50¢ to 10¢
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Rogers & Hamilton:	
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Steel Goods	40¢ to 10¢
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Cimeter, Flatware	40¢ to 15¢
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Cimeter, Steel Goods	40¢ to 10¢
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Crown Hamilton, Flatware and Cutlery	30¢
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German Silver	50¢ to 50¢
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Nickel Silver	60¢ to 50¢ to 10¢
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Britannia	60¢ to 50¢
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Boardman's Nickel Silver, list July 1, 1891	60¢ to 25¢
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Boardman's Britannia Spoons	60¢ to 25¢
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lots	60¢ to 25¢
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Spring Door—

Torrey's Rod, 39 in.	50¢ to 1.20
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Warner's No. 1, # doz. \$1.50; No. 2, \$3.40	
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Gem (Coll), list April 19, 1886	20¢
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Star (Coll), list April 19, 1886	20¢
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Victor (Coll)	60¢ to 10¢
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Champion (Coll)	60¢ to 10¢
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Cowell's No. 1, # doz. \$1.80; No. 2, \$1.60	
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Rubber, complete, # doz. \$4.50	
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Hercules	50¢ to 10¢
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Phoenix	50¢ to 10¢
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Carriage, Wagon, &c.

Eliphe, Concord, Platform and Half Scroll	60¢ to 10¢ to 10¢ to 10¢ or net prices
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Cliff's Bolster Springs	25¢
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Squares—

Steel and Iron	80¢ to 10¢ to 30¢ to 25¢
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Nickel-Plated	60¢ to 10¢
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Try Square and Levels	60¢ to 10¢
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Diston's Try Square and T Bevels	50¢
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Winterbottom's Try and Miter	30¢ to 10¢
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Starrett's Micrometer Calliper Squares	25¢
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Avery's Flush Bevel Squares	40¢
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Avery's Bevel Protractor	50¢
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Squeezers—

Blair's	50¢ to 2.00
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Blair's "Climax"	50¢ to 1.25
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Lemon—

Porcelain Lined, No. 1	25¢ to 30¢
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Wood, No. 2	25¢ to 30¢, 35¢
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Wood, Common	50¢ to 1.70 to 1.75
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Dunlap's Improved	50¢ to 3.75, 20¢
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Sammis No. 1, \$5.00; No. 2, \$3.12	
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Jennings' Star	25¢ to 12¢
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The Boss	50¢ to 2.50
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Dean's No. 1, # doz. \$6.50; 2, \$3.35; 3, \$1.90; Queen, \$2.50	
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Little Giant	50¢ to 50¢
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King	40¢ to 40¢
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Hotchkiss straight Flash	50¢ to 12.00
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Silver & Co. Glass	50¢ to 9.00
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Standard Fiber Ware—	
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See Ware, Standard Fiber.	
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Staples—	
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Barbed Blind, 1/4 in. and larger, # doz. \$7.75	
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Barbed Blind, 1/4 in.	Same price
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Fence Staples, Galvanized	See Trp Rep
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Fence Staples, Plain	See Trp Rep
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Grand Crossing Tack Co.'s list	75¢ to 10¢
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Steel Yards	40¢ to 10¢
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Stocks and Dies—	
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Blacksmith's	35¢
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Butterfield's Goods	35¢
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Lightning Screw Plates	25¢ to 30¢
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Reese's New Screw Plates	25¢ to 30¢
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Reversible Ratchet	30¢
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Gardner	45¢
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Green River	25¢ to 30¢
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Steps Bench	
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Morrill's, # doz, No. 1, \$10.00; No. 2, \$11.00	
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Hotchkiss	50¢ to 2.00
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Weston's, No. 1, \$10.00; No. 2, \$9.25; 25¢ to 10¢	
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McGill's, # doz \$3.

Cincinnati	25¢ to 10¢
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Terrill's Nos. 1 and 2, # doz, \$3; No. 3, \$3.60	
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Millers Falls	25¢
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Stearns	20¢ to 10¢
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Stone, Grind—See Grindstones.**Sythe Stones—**

Pike Mfg. Co. list April, 1892	33¢
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Cleveland Stone Co., list Nov. 1892	33¢
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Oil Stones, &c.—

Pike Mfg. Co.	
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Hindostan No. 1, # doz. 8¢	
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Sand Stone	40¢ to 40¢
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Turkey Oil Stone, 4 to 8 in.	10¢
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Turkey Slips	30¢
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Lily White Washita	80¢
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Rosy Red Washita	80¢
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Washita Stone, Extra	80¢
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Washita Stone, No. 1	40¢
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Washita Stone, No. 2	30¢
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Lily White Slips	80¢
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Rosy Red Slips	80¢
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Washita Slips, Extra	80¢
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Washita Slips, No. 1	40¢
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Arkansas Stone, No. 1, 8 to 10 in.	25¢
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Arkansas Stone, No. 1 1/2 to 8 in.	35¢
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Lake Superior	13¢
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Lake Superior Slips	20¢
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Stove Polish—

See Polish, Stove.

Stretchers, Carpet—

Cast Steel Polished	50¢ to 2.2
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Cast Iron, Steel Points	50¢ to 2.2
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Socket	50¢ to 1.75
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Bullard's	25¢ to 25¢ to 10¢
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Strops, Razor—

Genuine Emerson	60¢ to 60¢
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Imitation	50¢ to 2.00, 20¢ to 10¢
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Torrey's Belt and Comb	20¢
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Radger's Belt and Comb	20¢
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Lamont Combination	40¢ to 4.00
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Jordan's Pat. Padded, list Nov. 1, '89, 50¢	
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Electric Cutlery Co.	Net prices
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Campbell Cutlery Co.	Net prices
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Stuffer, Sausage—

Miles' Challenge, # doz \$20	50¢ to 50¢
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Perry, # doz, No. 1, \$15.00; No. 0, \$21.00	
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Draw Cut No. 4, each \$30.00	50¢ to 50¢
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Enterprise Mfg. Co., list Jan 17, '93	25¢
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Silver's	40¢ to 10¢
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Sweepers, Carpet and Lawn—

Bissell No. 5	50¢ to 1.70
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Bissell No. 8	50¢ to 2.00
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Bissell, Grand	50¢ to 3.00
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Domestic	50¢ to 2.40
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Domestic, No. 2	50¢ to 2.20
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Grand Rapids	50¢ to 2.40
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Crown Jewel, No. 1, \$18.00; No. 2, \$19.00	
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Magie	50¢ to 1.00
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Improved Parlor Queen	50¢ to 1.00
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Nickel	50¢ to 1.00
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Japanned	50¢ to 1.00
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Excelsior	50¢ to 1.00
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Garland	50¢ to 1.00
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Farior Queen	50¢ to 1.00
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Ladies' Delight	50¢ to 1.00
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Ladies' Friend	50¢ to 1.00
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Ladies' Friend No. 2	50¢ to 1.00
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Advance	50¢ to 1.00
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Our Leader	50¢ to 1.00
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Triumph	50¢ to 1.00
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Supreme	50¢ to 1.00
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Pat. Jap'd, # doz \$22.00; Nickel, \$24.00	
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Gilt Edge	50¢ to 1.00
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Acme	50¢ to 1.00
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Imperial	50¢ to 1.00
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Grand Republic	50¢ to 1.00
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Jap'd, # doz \$30.00; Nickel, \$33.00	
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Banner	50¢ to 1.00
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The Star	50¢ to 1.00
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Reliable

Whips

American Whip Co.: Length.	4½	5	5½	6	6½	7	7½	8 ft.
X. L. Whalebone Driving	\$18.00	20.00	22.00	24.00	27.00	30.00	33.00	\$36.00
Eureka, Two-thirds Whalebone	15.00	16.50	18.00	20.00				
Bull Bone, Half-length Whalebone			11.00	12.00	13.00	15.00		
American Standard	8.00	8.50	9.50	10.50	12.00	13.50	15.00	16.50
True Grip, Raw Hide Center	6.00	6.00	6.50	7.00	7.50	9.00		
New Name, Stocked Java, Black and Wine Colors				6.00				
Americus, 93 Pen Whip				6.00				
Gents' Light Driving No. 111				6.00				
Gents' Light Driving No. 106				5.00				
Hand-made Stocked Java No. 103			3.75	4.00				
A large variety of cheaper grades								50¢ to \$3.00
Team Whips								\$2.00 to \$7.50
Toy Whips								50¢ to \$3.00
Hardware Assortment, 10/American, 75 Whips for \$50.00								gro. \$2.50 to \$12.00

Wire and Wire Goods—**Iron—**

Market,	Br. & Ann., Nos. 0 to 18.	Extra 50¢ to 10¢ often given and low net prices often made on large lots.
Cop'd, Nos. 0 to 18.	75¢ to 10¢	
Galv., Nos. 0 to 18.	70¢ to 10¢	
Tin'd, Tin'd list, Nos. 0 to 18.	70¢ to 10¢	

Stone,	Br. and Ann'd,	Extra 10% often given.
Nos. 16 to 18.	80¢	
Nos. 19 to 23.	80¢ to 85¢	
Nos. 27 to 36.	82¢ to 85¢	
Tinned Broom Wire, 18 to 21.	45¢	
Galvanized Fence	75¢ to 10¢	
Brass, list Jan. 18, 1893.	40¢ to 45¢	
Copper, list Jan. 18, 1893.	40¢ to 45¢	
Annealed Wire on Spools.	60¢	
Malin's An'led and Tin'd on Spools.	60¢ to 65¢	
Malin's Brass and Cop. on Spools.	50¢ to 55¢	
Ossawan Mills, An'led and Tinned on Spools.	60¢ to 10¢	

Ossawan Mills, Brass and Copper on Spools. 50¢ to 10¢
 Tate's Spooled, Tin'd & Annealed. 60¢ to 65¢
 Tate's Spooled Cop. and Brass. 50¢
 Cast Steel Wire. 50¢ to 55¢
 Stub's Steel Wire. 50¢ to 55¢
 Steel Music Wire, 12 to 30, imported. 60¢ to 70¢

Wire Clothes Line, see Lines.
 Wire Picture Cord, see Cord.
Bright Wire Goods—
 Standard list. 35¢ to 10¢ to 90¢
Wire Cloth and Netting—
 Painted Screen Cloth 100 ft. \$1.40
 Galvanized Wire Netting. 75¢ to 10¢ to 80¢

Wire Barb—

See Trade Report.

Wire Rope—See Rope, Wire.**Wrenches—**

American Adjustable	40¢ to 50¢
Baxter's Adjustable "S"	40¢ to 50¢
Baxter's Diagonal	60¢
Coe's Genuine	50¢ to 50¢ to 10¢
Coe's "Mechanics"	50¢ to 10¢ to 3¢
Girard Standard	55¢ to 10¢ to 70¢
Lamson & Sessions' English	60¢ to 10¢
Lamson & Sessions' Standard	70¢ to 10¢
P. S. & W. Agricultural	75¢ to 10¢ to 80¢
Girard Agricultural	
Lamson & Sessions' Agric'l.	
W. & B. Diamond	

Bemis & Call's:	
Pat. Combination Bright	40¢ to 50¢
Pat. Combination Black	40¢ to 10¢
Merrick's Pattern	45¢
Briggs' Pattern	30¢ to 10¢
Cylinder or Gas Pipe	45¢ to 50¢
No. 3 Pipe	55¢
Allen's Pocket (Bright)	\$3.00, 50¢ to 10¢
The Favorite Pocket	\$4.00, 40¢
Webster's Pat. Combination	25¢
Boardman's	25¢ to 55¢
Always Ready	50¢
Alligator	50¢
Donohue's Engineer	20¢ to 10¢
Eagle	50¢ to 10¢
Acme, Bright	50¢ to 2¢
Acme, Nickle	70¢ to 2¢
Hercules	70¢ to 2¢
Walker's	55¢ to 3¢
Diamond Steel	55¢ to 3¢
Cincinnati Brace Wrenches	25¢ to 10¢
Taft's Vise Wrench	55¢ to 10¢ to 3¢

Wringers, Clothes—

Am. Wringer Co.'s list, July 1, 1893.	2% cash
Colby Wringer Co., list Sept. 1, 1893.	2% cash
Novel Mfg. Co., list July 1, 1893.	2% cash
Peerless Mfg. Co., list Feb. 1892.	2% cash
Local Wringer & Mfg. Co., list June 1, 1892.	2% cash

Wrought Goods—

Staples, Hooks, &c., list, March 17, 1892.	85¢ to 10¢ to 85¢ to 15¢
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Paints, Oils and Colors.—Wholesale Prices.**Animal and Vegetable Oils—**

Linseed, City, raw, per gal.	47
Linseed, City, boiled	50
Linseed, Western, raw	47
Lard, City, Extra Winter	70
Lard, City, Prime	70
Lard, City, Extra No. 1	50
Lard, City, No. 1	45
Lard, Western, prime	70
Cotton-seed, Crude, prime	23
Cotton-seed, Crude, off grades	25
Cotton-seed, Summer Yellow, prime	34
Cotton-seed, Summer Yellow, off grades	30
Sperm, Crude	65
Sperm, Natural Spring	66
Sperm, Bleached Spring	71
Sperm, Natural Winter	71
Sperm, Bleached Winter	76
Whale, Crude	45
Whale, Natural Winter	45
Whale, Bleached Winter	48
Whale, Extra Bleached	50
Sea Elephant, Bleached Winter	32
Menhaden, Crude, Sound	36
Menhaden, Crude, Southern	36
Menhaden, Light Pressed	41
Menhaden, Bleached W'ter	43
Menhaden, Extra Bleached	49
Tallow, City, prime	50
Tallow, Western, prime	48
Cocanut, Ceylon	56¢
Cocanut, Cochiti	61¢
Cod, Domestic	38
Cod, Foreign	42
Red Elaine	35
Red Saponified	6
Bank	38
Straits	39
Olive, Italian bbls.	58
Neatsfoot, prime	60
Palm, prime, Lagos	54

Mineral Oils—

Black, 29 gravity, 25 to 30 cold test	7
Black, 29 gravity, 15 cold test	7½
Black, 29 gravity, summer	8
Cylinder light, filtered	14

Cylinder, dark, filtered	10
Paraffine, 23½ to 24 gravity	11
Paraffine, 25 gravity	10
Paraffine, 28 gravity	7½
Paraffine, red	9½

Paints and Colors—

Barytes, Foreign, 10 ton	\$22.00
Barytes, Amer. No. 1	20.00
Barytes, Amer. No. 2	18.00
Barytes, Amer. No. 3	15.00
Barytes, Amer. No. 4	12.00
Blue, Celestial	4
Blue, Chinese	6
Blue, Prussian	25
Blue, Ultramarine	8
Brown, Spanish	¾
Brown, Vandyke, Amer.	3
Brown, Vandyke, English	6
Carmine, No. 40, in bulk	2.75
Carmine, No. 40, in boxes	3.75
Carmine, No. 40, in ounce bottles	2.85
Chalk, in bulk	1.75
Chalk, in bbls.	33
China Clay, English	18.00
Cobalt Oxide, prep'd	9.00
Cobalt Oxide, black	1.90
Cobalt Oxide, black, less 100 lb.	1.96
Green, Paris, in bulk	10
Green, Paris, 170 to 175	10½
Green, Paris, small pack	12
Green, Chrome, ordinary	6
Green, Chrome, pure	22
Lead, Eng., B.B. white	84
Lead, Ann. White, dry or in oil	6½
Kegs, lots less than 500 lb.	8
Kegs, lots 500 lb. to 5 tons	5½
Kegs, lots 5 tons to 12 tons	5
Kegs, lots 12 tons and over	5½
Lead, White, in oil, 12½ lb tin	1
Lead, White, in oil, 1 to 5 lb	2½
Lead, White, in oil, 1 to 5 lb, sorted tins, add to keg price	5½
Lead, Red, bbls.	5½
Lead, Red, kegs	5½
Litharge, kegs	5½
Litharge, bbls. and ½ bbls	5½

TERMS, &c.—Lead and Litharge.—On lots of 500 lb or over, 60 days' time or 2½ % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle	1.35
Ocher, French Washed	1¼
Ocher, German Washed	1¼
Orange, American	8½
Orange Mineral, French	10
Orange Mineral, German	8½
Orange Mineral, American	8½
Paris White, English Cliff	1.00
Paris White, American	65
Red, Indian, English	5½
Red, Indian, American	2
Red, Turkey	9
Red, Tuscan	9
Red, Venetian, American	130
Red, Venetian, English	120
Sienna, Italian, Burnt and Powd.	4
Sienna, Ital., Burnt Lumps	1¼
Sienna, Ital., Raw, Powd.	4½
Sienna, Ital., Raw, Lumps	1¼
Sienna, American, Raw and Powdered	1¼
Talc, French	1¼
Talc, American	1¼
Terra Alba, Fr'ch	95
Terra Alba, American No. 1	70
Terra Alba, American No. 2	45
Umber, Turkey, Burnt and Powdered	3¼
Umber, Turkey, Raw and Powdered	3¼
Umber, Turkey, B't Amer.	1¼
Umber, Turkey, R'w Amer.	1¼
Yellow, Chrome	10
Vermilion, American Lead	11
Vermilion, Quicks'er, bulk	43
Vermilion, Quicks'er, bags	44
Vermilion, Quicksilver sm'r pks.	52
Vermilion, English Import	80
Vermilion, Imitation, Eng.	8
Vermilion, Trieste	90
Vermilion, Chinese	92½
Whiting Common	37½
Whiting Gliders	45

Zinc, American, dry	3¼
Zinc, French, Red Seal	7¾
Zinc, French, Green Seal	9
Zinc, French, V. M. X.	7
Zinc, Antwerp, Red Seal	7¾
Zinc, Antwerp, Green Seal	7¾
Zinc, German, L. Z. O.	6¼
Zinc, V. M. in Poppy Oil	9
Seal, lots of 1 ton and over	10½
lots less than one ton	11
Zinc, V. M. in Poppy Oil, Red Seal	10
lots of 1 ton and over	10½
lots of less than 1 ton	10½
Discounts.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1½; 25 bbls., 2½; 50 bbls., 4½. No discount allowed on less than bbl. lots.	

Colors in Oil—

Black, Drop, Frankfurt	25
Black, Drop, English	12
Black, Drop, Domestic	7
Black, Lampblack, Best	20
Black, Lampblack, Common	7
Black, Ivory	13
Blue, Chinese	35
Blue, Prussian	20
Blue, Ultramarine	12
Brown, Vandyke	7
Green, Chrome	8
Green, Paris	16
Sienna, Raw	7
Sienna, Burnt	7
Umber, Raw	7
Umber, Burnt	7

Putty—

In barrels and ½ bbls.	013¢
In tubs	013¢
In tin cans	013¢
In bladders	013¢

Spirits Turpentine—

In regular bbls.	30
In machine bbls.	31

Glee—

Low Grade	8
Cabinet	12
Medium White	13
Extra White	17
French	10
English	10
Irish	12

THE IRON AGE.

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CURRENT METAL PRICES.

JANUARY 10, 1894.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Common Iron:
 $\frac{3}{4}$ to 2 in. round and square... } \$ 1.80 @ 1.90
 1 to 6 in. x $\frac{3}{4}$ to 1 in. }

Refined Iron:

$\frac{3}{4}$ to 2 in. round and square... } \$ 1.90 @ 2.00
 1 to 4 in. x $\frac{3}{4}$ to 1 in. }
 4 to 6 in. x $\frac{3}{4}$ to 1 in. } \$ 2.10 @ 2.20
 1 to 6 in. x $\frac{3}{4}$ and 5-16... } \$ 2.00 @ 2.10
 Rods— $\frac{3}{4}$ and 1-16 round and sq... } \$ 2.20 @ 2.30
 Bands—1 to 6 x 3-16 to No. 12... } \$ 2.20 @ 2.30
 "Burden Best" Iron, base price... } \$ 3.00
 Burden's "H. B. & S." Iron,
 base price... } \$ 2.80
 "Ulster"... } \$ 3.00
 Norway Bars... } \$ 3.75 @ 4.00
 Norway Shapes... } \$ 4.50 @ 5.00

Merchant Steel from Store—

Open-Hearth and Bessemer Machinery,
 Toe Calk, Tire and Sleigh Shoe, base
 price in small lots... } \$ 2 1/2
 Best Cast Steel, base price in small lots... } \$ 8
 Best Cast Steel Machinery, base price in
 small lots... } \$ 5

Sheet Iron from Store—

Black—

Best Refined Iron.

Nos. 14 to 20... } \$ 3 @ 3 1/4
 21 to 24... } \$ 3 1/4 @ 3 1/2
 25 to 28... } \$ 3 1/2 @ 3 3/4
 27... } \$ 3 1/4 @ 3 1/2
 28... } \$ 3 1/2 @ 3 3/4
 Common $\frac{1}{4}$ ¢ less than the above.

Open Hearth Steel.

Best Soft Steel, Nos. 14 to 16... } \$ 2 1/4 @ 2 3/4
 " " " 18 to 20... } \$ 2 3/4 @ 3
 " " " 21 to 24... } \$ 3 @ 3 1/4
 " " " 25 to 28... } \$ 3 1/4 @ 3 1/2
 " " " 27 to 28... } \$ 3 1/2 @ 3 3/4
 Best Bloom Sheets, $\frac{1}{4}$ ¢ extra over above prices.
 Best Bloom, Galvanized, jobbing dis. 70 @ 70 1/2
 Ordinary Bessemer, $\frac{1}{4}$ ¢ @ $\frac{1}{4}$ ¢ lower than
 above prices.

Russia, Planished, &c.

Genuine Russia, according to
 assortment... } \$ 12¢ @ 13¢
 Patent Planished... } \$ 10¢ @ 11¢
 Craig Polished Sheet Steel... } \$ 8 1/2¢

Foreign Steel from Store—

Best Cast... } \$ 15
 Extra Cast... } \$ 16 1/2
 Swaged Cast... } \$ 16
 Best Double Shear... } \$ 15
 Blister, 1st quality... } \$ 12
 German Steel, Best... } \$ 10
 2d quality... } \$ 9
 3d quality... } \$ 8
 Sheet Cast Steel, 1st quality... } \$ 15
 2d quality... } \$ 14
 3d quality... } \$ 12 1/2
 R. Mushet's "Special"... } \$ 48
 " " " " Annealed... } \$ 75
 " " " " " " " " \$ 20
 Eicken's Special No. 8... } \$ 30
 " Extra... } \$ 15

METALS—

Tin—

Banca, Pigs... } \$ 22 1/2 @ 22 3/4
 Straits, Pigs... } \$ 21 1/4 @ 22
 Straits in Bars... } \$ 22 1/4 @ 23

Tin Plates—

Duty: 2 1/2¢ lb.

Guaranteed Plates command special prices,
 according to quality.

Melyn and Calland Grade, IC, 10 x 14... } \$ 6.50
 " " " " " " " " " " " " " " \$ 6.75
 " " " " " " " " " " " " " " \$ 6.50
 " " " " " " " " " " " " " " \$ 13.00
 " " " " " " " " " " " " " " \$ 8.50
 " " " " " " " " " " " " " " \$ 8.75
 " " " " " " " " " " " " " " \$ 8.50
 " " " " " " " " " " " " " " \$ 17.00
 " " " " " " " " " " " " " " \$ 6.00
 " " " " " " " " " " " " " " \$ 8.00
 Allaway Grade... } \$ 6.00
 " " " " " " " " " " " " " " \$ 6.25
 " " " " " " " " " " " " " " \$ 6.00
 " " " " " " " " " " " " " " \$ 12.00
 " " " " " " " " " " " " " " \$ 7.50
 " " " " " " " " " " " " " " \$ 7.75
 " " " " " " " " " " " " " " \$ 7.50
 " " " " " " " " " " " " " " \$ 15.00
 " " " " " " " " " " " " " " \$ 5.50
 " " " " " " " " " " " " " " \$ 7.00

Coke Plates—Bright—

Steel Coke, IC, 10 x 14, 14 x 20... } \$ 5.50 @ \$ 5.50
 " " " " " " " " " " " " " " \$ 8.50
 " " " " " " " " " " " " " " \$ 11.50 @ 12.00
 " " " " " " " " " " " " " " \$ 7.00
 BV Grade, IC, 10 x 14, 14 x 20... } \$ 5.50

Charcoal Plates—Terne—

Guaranteed Plates command special prices
 according to quality.

Dean Grade, IC, 14 x 20... } \$ 5.65
 " " " " " " " " " " " " " " \$ 11.00
 " " " " " " " " " " " " " " \$ 8.40
 " " " " " " " " " " " " " " \$ 12.80
 Abecarne Grade, IC, 14 x 20... } \$ 5.55
 " " " " " " " " " " " " " " \$ 10.75
 " " " " " " " " " " " " " " \$ 8.40
 " " " " " " " " " " " " " " \$ 12.80

Tin Boiler Plates—

IXX, 14 x 26... } \$ 13.35
 IXX, 14 x 28... } \$ 14.50
 IXX, 14 x 31... } \$ 16.00

American Terne Plates.—Apollo.

IC, 14 x 20... } \$ 5.25
 IC, 20 x 28... } \$ 12.50
 IX, 14 x 20... } \$ 7.25
 IX, 20 x 28... } \$ 14.50

Copper—

Duty: Pig, Bar and Ingot, 1 1/4¢; Old Copper, 1¢
 B. Manufactured (including all articles of
 which Copper is a component of chief value),
 35¢ ad valorem.

Ingot—

Lake... } @ 11¢
 Ansonia grade Arizona... } @ 10 1/2¢
 Ansonia grade Casting... } @ 10¢

Sheet and Bolt—

Prices adopted by the Association of Copper
 Manufacturers of the United States, May
 18, 1892. Subject to a discount of 15¢ @ 35¢,
 according to size of order. Stubs' gauge
 standard.

	Not wider than	Not longer than	And longer than	Weights per sq. foot and prices per pound.									
				Over 64 oz.	22 to 64 oz.	16 to 22 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.		
30	72			22	22	22	23	24	25	28	30		
30		72		22	22	22	23	25	27	31			
36	96			22	22	22	24	26	30	33			
36		96		22	22	22	25	27	31	35			
48	96			22	22	24	26	28	32				
48		96		22	22	25	27	29	33				
60	96			22	22	27	29	34					
60		96		22	22	28							
84	96			23	24								
84		96		24	25								
Over 84 in. wide				25	27								

Bolt Copper, $\frac{3}{4}$ inch diameter and over, \$ 22¢
 Circles, Segments and Pattern Sheets, 60 in.
 diameter and less, 3¢ lb advance over prices
 of Sheet Copper required to cut them from.
 Circles, Segments and Pattern Sheets, over 60
 in. diameter, up to 96 in. diameter inclusive,
 4¢ lb advance over prices of Sheet Copper
 required to cut them from.
 Circles, Segments and Pattern Sheets, over 96
 in. diameter, 5¢ lb advance over prices of
 Sheet Copper required to cut them from.
 Cold or Hard Rolled Copper 14 oz. square foot
 and heavier, 1¢ lb over the foregoing prices.
 Cold or Hard Rolled Copper lighter than 14 oz
 square foot, 2¢ lb over the foregoing prices.
 All Polished Copper over 20 in. wide, 2¢ lb
 advance over the foregoing prices.

Copper Bottoms, Pits and Flats—

14 ounce to square foot and heavier... } \$ 20¢
 12 ounce and up to 14 ounce to square foot... } \$ 27¢
 10 ounce and up to 12 ounce... } \$ 32¢
 Lighter than 10 ounce... } \$ 32¢

Circles less than 8 inches diameter, 2¢ lb ad-
 ditional.
 Circles over 13 inches diameter are not classed
 as Copper Bottoms.

15¢ @ 25¢ discount, according to size of order.

Copper Wash Bowl Bottoms—

Tinned... } \$ 34¢, 15¢ @ 25¢

Tinning—

Tinning sheets on one side, 10, 12 and 14 x 48
 each... } \$ 8¢
 Tinning sheets on one side, 80 x 80 each... } \$ 30¢
 For tinning boiler sizes, 9 in. (sheets 14 in. x 60
 in.), each... } \$ 15¢
 For tinning boiler sizes, 8 in. (sheets 14 in. x 56
 in.), each... } \$ 12¢
 For tinning boiler sizes, 7 in. (sheets 14 in. x 52
 in.), each... } \$ 12¢
 Tinning sheets on one side, other sizes, per
 square foot... } \$ 2 1/4¢
 For tinning both sides double the above prices.

Planished Brass and Copper—

Not larger than 80 x 60.

16 oz. and heavier... } \$ 24¢ @ 25¢
 14 oz... } \$ 25¢ @ 26¢
 12 oz... } \$ 27¢ @ 28¢

Seamless Brass Tubes—

Standard always Stubs' gauge, unless other-
 wise ordered.

July 6, 1892.

O. G.	N. G.	%	1/4	1/2	3/4	1	1 1/2
8-14	6-12	32	28	26	24	23	19
15	13	33	28	26	25	24	20
16	14	34	29	27	26	25	20
17	15	35	30	28	27	26	21
18	16	37	31	29	27	26	22
19	17	38	32	30	29	28	22
20	18-19	39	34	32	31	30	26
21	20	41	36	34	33	32	29
22	21	43	37	35	34	33	31
23	22	45	39	37	36	35	34
24	23	48	41	39	38	36	36
25	24	51	44	41	40	39	38

Copper, Bronze and Gilding Tube, 8¢ lb additional

Brass Tubing. (To No. 20 inclusive.)

Brown & Sharpe's gauge standard.

Above 5-16 inch to 5 inch, inclusive... } \$ 35¢

Plain, above 5 inch... } \$ 45¢

Plain, 5-16 inch... } \$ 60¢

Plain, 3-16 inch... } \$ 1.00

Plain, 1/4 inch... } \$ 1.50

Pancy Tubing, Brass, to No. 20, inclusive... } \$ 43¢ @ 44¢

Discount from list... } \$ 30 @ 31

Roll and Sheet Brass—

(Brown & Sharpe Standard Gauge.)

Common High Brass:	in.	in.	in.	in.	in.	in.	in.
Wider than	2	10	12	14	16	18	20
and including	10	12	14	16	18	20	22
To No. 20 - inclusive	21	22	23	25	27	29	31
Nos. 21, 22, 23 and 24	22	23	24	26	28	30	32
Nos. 25 and 26	23 1/2	24 1/2	25 1/2	27 1/2	29 1/2	31 1/2	33 1/2
Nos. 27 and 28	25	26	27	29	31	33	35

Common High Brass:	in.	in.	in.	in.	in.	in.	in.
Wider than	24	26	28	30	32	34	36
and including	26	28	30	32	34	36	38
To No. 20, inclusive	36	39	42	46	50	55	60
Nos. 21, 22, 23 and 24	37	40	43	47	51	56	61
Nos. 25 and 26	38	41	44	48	52	57	63
Nos. 27 and 28	39	42	45	49	53	58	64

Discount from List 15¢ to 25¢.

Brass and Copper Wire—

List January 17, 1884.

Numbered by Stubs' gauge.	Soft & hard high brass.	Spring high brass.	Low brass.	Cop- per.
All Nos. to No. 16, inclu- sive.	\$0.22	\$0.24	\$0.26	\$0.30
No. 17 and No. 18	.23	.25	.27	.31
No. 19 and No. 20	.24	.26	.28	.32
No. 21, or 0.032 diameter	.25	.27	.29	.33

Discount 15¢ to 25¢.

Fine Numbers.

Numbered by London gauge.	Brass.	Spring high brass.	Low brass.	Cop- per.
No. 22...	\$0.26	\$0.28	\$0.30	\$0.34
No. 23...	.28	.30	.32	.36
No. 24...	.30	.32	.34	.38
No. 25...	.32	.34	.36	.40
No. 26...	.35	.37	.39	.43
No. 27...	.38	.40	.42	.46
No. 28...	.42	.44	.46	.51
No. 29...	.45	.47	.49	.54
No. 30...	.48	.50	.52	.57
No. 31...	.51	.53	.55	.60
No. 32...	.55	.57	.59	.64
No. 33...	.59	.61	.63	.68
No. 34...	.64	.66	.68	.73
No. 35...	.70	.72	.74	.79
No. 36...	.76	.78	.80	.85
No. 37...	1.00	1.02	1.04	1.10
No. 38...	1.30	1.32	1.34	1.40
No. 39...	2.00	2.02	2.04	2.10
No. 40...	2.60	2.62	2.64	2.70

— % discount.

Spring Wire, 2¢ lb advance.

Copper Belt and Hose Rivets and Burrs—

No.	Per lb.	No.	Per lb.
No. 5...	40¢	No. 11...	60¢
No. 6...	40¢	No. 12...	58¢
No. 7...	40¢	No. 13...	60¢
No. 8...	50¢	No. 14...	65¢
No. 9...	52¢	No. 15...	70¢
No. 10...	64¢		

60¢ @ 5¢ discount.

Tobin Bronze—Rods.

Drawn Rods for Bolts, Forgings, &c.
 $\frac{1}{4}$ to $\frac{3}{4}$ inches inclusive... } 17¢ @ 18¢
 Over $\frac{3}{4}$ to 5 inches inclusive... } 18¢ @ 19¢
 Piston Rods, Finished True, Smooth and Straight.
 $\frac{1}{4}$ to $\frac{3}{4}$ inches inclusive... } 18¢ @ 19¢
 Over $\frac{3}{4}$ to 5 inches inclusive... } 19¢ @ 20¢

Spelter—

Duty: Pig, Bars and Plates, \$1.50 @ 100 lb.
 Western Spelter... } \$ 4 1/2
 Bertha (pure)... } \$ 8 @ 8 1/2

Zinc—

Duty: Sheet, 2 1/4¢ lb.
 600 lb casks... } \$ 5 1/2
 Per lb... } \$ 6 @ 6 1/2

Lead—

Duty: Pig, \$2 @ 100 lb. Old Lead, 2¢ lb. Pipe
 and Sheets, 2 1/4¢ lb.
 American Pig... } \$ 4 @ 4 1/2
 Bar... } \$ 4 1/2
 Pipe, subject to discount 20%... } \$ 6 1/2
 Tin-Lined Pipe, subject to discount 20%... } \$ 15¢
 Block Tin Pipe, subject to discount 20%... } \$ 37 1/2
 Sheet, subject to discount 20%... } \$ 7¢
 Old Lead in exchange, 3 1/4¢ lb.

Solder—

$\frac{1}{2}$ @ $\frac{1}{2}$... } \$ 13 1/2 @ 14 1/2
 No. 1... } \$ 11 1/2 @ 12 1/2
 Prices of Solder indicated by private brands
 vary according to composition.

Antimony—

Cookson... } \$ 11
 Hallett's... } \$ 10 1/2

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